

Service Manual

Stereo Integrated DC Amplifier

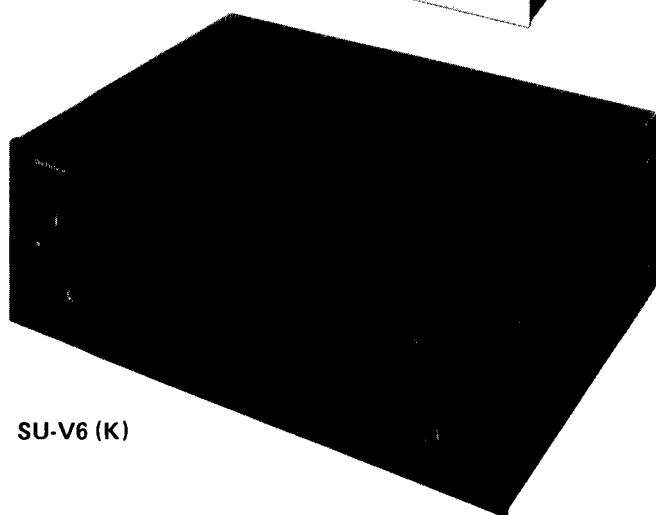
SU-V6

[D], [DG], [EB], [XE], [XSW],
[XGH], [XGF], [XAL], [XA]

SU-V6(K)

[D], [DG], [EB], [XE], [XSW],
[XGH], [XAL], [XA]

SU-V6



SU-V6 (K)

* The colors of this model include silver and black.
The black type model is provided with (K) in the Service Manual.

Areas

- * [D] and [DG] are available in Scandinavia and European except Belgium, United Kingdom, Switzerland, Holland and France.
- * [EB] is available in Belgium.
- * [XE] is available in United Kingdom.
- * [XSW] is available in Switzerland.
- * [XGH] is available in Holland.
- * [XGF] is available in France.
- * [XAL] is available in Australia.
- * [XA] is available in Asia, Latin America, Middle East and Africa.

TECHNICAL SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

[DIN 45 500]

AMPLIFIER SECTION

20 Hz~20 kHz continuous power output		
both channels driven	2 × 70W (8Ω)	2 × 80W (4Ω)
40 Hz~16 kHz continuous power output		
both channels driven	2 × 70W (8Ω)	2 × 80W (4Ω)
1 kHz continuous power output		
both channels driven	2 × 74W (8Ω)	2 × 90W (4Ω)
Total harmonic distortion		
rated power at 20 Hz~20 kHz		0.02% (4Ω)
		0.007% (8Ω)
rated power at 40 Hz~16 kHz		0.02% (4Ω)
		0.007% (8Ω)
rated power at 1 kHz		0.01% (4Ω)
		0.007% (8Ω)
half power at 20 Hz~20 kHz		0.007% (8Ω)
half power at 1 kHz		0.003% (8Ω)
-26 dB power at 1 kHz		0.05% (4Ω)
50 mW power at 1 kHz		0.08% (4Ω)
Intermodulation distortion		
rated power at 250 Hz: 8 kHz=4:1, 4Ω		0.02%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω		0.007%
Power bandwidth		
both channels driven, -3 dB		
(THD 0.03%)	5 Hz~60 kHz (4Ω)	
(THD 0.02%)	5 Hz~60 kHz (8Ω)	

Residual hum and noise (straight DC)		0.3 mV
Damping factor		30 (4Ω), 60 (8Ω)
Input sensitivity and impedance		
PHONO MM		2.5 nV/47kΩ
MC		170 μV/47Ω
TUNER, AUX		150 nV/36kΩ
TAPE 1 REC/PLAY		170 nV/39kΩ
TAPE 2		150 nV/36kΩ
PHONO maximum input voltage (1 kHz, THD 0.01% RMS)		
MM		150 mV
MC		10 mV
S/N		
rated power (4Ω)		
PHONO MM		78 dB (86 dB, IHF, A)
MC		68 dB (68 dB, IHF, A: 250 μV input)
TUNER, AUX		92 dB (IHF, A: 106 dB)
-26 dB power (4Ω)		
PHONO MM		67 dB
MC		65 dB
TUNER, AUX		68 dB
50 mW power (4Ω)		
PHONO MM		64 dB
MC		62 dB
TUNER, AUX		65 dB

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Frequency response

PHONO

RIAA standard curve

± 0.5 dB (30 Hz~15 kHz)

TUNER, AUX, TAPE (straight DC) DC~150 kHz (-3 dB)
+0 dB, -0.3 dB (20 Hz~20 kHz)

Tone controls

BASS

50 Hz, +10 dB~ -10 dB

TREBLE

20 kHz, +10 dB~ -10 dB

Subsonic filter

20 Hz, -12 dB/oct.

High-cut filter

7 kHz, -6 dB/oct.

Loudness control (volume at -30 dB)

50 Hz, +9 dB

Output voltage and impedance

REC OUT

150 mV

TAPE 1 REC/PLAY

30 mV/82k Ω

Channel balance, AUX 250 Hz~6,300 Hz

± 1.0 dB

Channel separation, AUX 1 kHz

55 dB

Headphones output level and impedance

560 mV/330 Ω

Load impedance

MAIN or REMOTE

4 Ω ~16 Ω

MAIN and REMOTE

8 Ω ~16 Ω

GENERAL

Power consumption

760W

Power supply

AC 50 Hz/60 Hz, 110V/120V/220V/240V

Dimensions (W×H×D)

430 × 153 × 351 mm
(16-15/16" × 6-1/32" × 13-13/16")

Weight

12.5 kg
(27.6 lb.)

Note:

Total harmonic distortion is measured by the digital spectrum analyzer (HP. 3045 system).

TECHNISCHE DATEN

Spezifikationen können infolge von verbesserungen ohne Ankündigung geändert werden.*

[DIN 45 500]

VERSTÄRKERTEIL

Dauerton-Ausgangsleistung bei 20 Hz ~ 20 kHz

beide Kanäle ausgesteuert 2 × 80W (4 Ω)
2 × 70W (8 Ω)

Dauerton-Ausgangsleistung bei 40 Hz ~ 16 kHz

beide Kanäle ausgesteuert 2 × 80W (4 Ω)
2 × 70W (8 Ω)

Dauerton-Ausgangsleistung bei 1 kHz

beide Kanäle ausgesteuert 2 × 90W (4 Ω)
2 × 74W (8 Ω)

Gesamtklirrfaktor

Nennleistung bei 20 Hz ~ 20 kHz 0,02% (4 Ω)

0,007% (8 Ω)

Nennleistung bei 40 Hz ~ 16 kHz 0,02% (4 Ω)

0,007% (8 Ω)

Nennleistung bei 1 kHz 0,01% (4 Ω)

0,007% (8 Ω)

halbe Nennleistung bei 20 Hz ~ 20 kHz 0,007% (8 Ω)

halbe Nennleistung bei 1 kHz 0,003% (8 Ω)

-26 dB Leistung bei 1 kHz 0,05% (4 Ω)

50 mW Leistung bei 1 kHz 0,08% (4 Ω)

Intermodulationsfaktor

Nennleistung bei 250 Hz: 8 kHz = 4:1, 4 Ω 0,02%

Nennleistung bei 60 Hz: 7 kHz = 4:1, nach SMPTE, 8 Ω 0,007%

Leistungsbandbreite

beide Kanäle ausgesteuert bei -3 dB
(THD 0.03%) 5 Hz ~ 60 kHz (4 Ω)
(THD 0.02%) 5 Hz ~ 60 kHz (8 Ω)

Restbrumm und Geräusch (straight DC)

0,3 mV

Dämpfungsfaktor

30 (4 Ω), 60 (8 Ω)

Eingangsempfindlichkeit und -impedanz

Phono - magnetisch (PHONO MM) 2,5 mV/47 k Ω

Phono - dynamisch (PHONO MC) 170 μ V/47 Ω

Tuner, Aux 150 mV/36 k Ω

Tape 1 Aufnahme/Wiedergabe (TAPE 1 REC/PLAY)

170 mV/39 k Ω

Tape 2 (TAPE 2) 150 mV/36 k Ω

Maximale TA-Eingangsspannung (1 kHz, THD 0.01% eff.)

magnetisch (MM) 150 mV

dynamisch (MC) 10 mV

Frequenzgang

Phono RIAA-Standardkurve

± 0.5 dB (30 Hz ~ 15 kHz)

Tuner Aux, Tape (straight DC) DC ~ 150 kHz (-3 dB)

+0 dB, -0.3 dB (20 Hz ~ 20 kHz)

Geräuschabstand

Nennleistung (4 Ω)

Phono - magnetisch (PHONO MM)

78 dB (86 dB nach IHF, A)

Phono - dynamisch (PHONO MC)

68 dB (68 dB nach IHF, A: 250 μ V input)

Tuner, Aux

92 dB (nach IHF, A: 106 dB)

-26 dB Leistung (4 Ω)

Phono - magnetisch (PHONO MM)

67 dB

Phono - dynamisch (PHONO MC)

65 dB

Tuner, Aux

68 dB

50 mW Leistung (4 Ω)

Phono - magnetisch (PHONO MM)

64 dB

Phono - dynamisch (PHONO MC)

62 dB

Tuner, Aux

65 dB

Klangregler

Baßregler (BASS)

50 Hz, +10 dB ~ -10 dB

Höhenregler (TREBLE)

20 kHz, +10 dB ~ -10 dB

Tiefenfilter

20 Hz, -12 dB/Okt.

Rauschfilter

7 kHz, -6 dB/Okt.

Gehörriichtige Lautstärkekorrektur (Loudness)

(bei -30 dB Ausgangsleistung)

50 Hz, +9 dB

Ausgangsspannung und -impedanz

Aufnahmeausgang (REC OUT)

150 mV

Tape 1 Aufnahme/Wiedergabe (TAPE 1 REC/PLAY)

30 mV/82 k Ω

Kanalabweichung (Aux, 250 Hz ~ 6300 Hz)

± 1.0 dB

Übersprechdämpfung (Aux, 1 kHz)

55 dB

Kopfhörerpegel und -impedanz

560 mV/330 Ω

Lautsprecherimpedanz

MAIN oder REMOTE

4 Ω ~ 16 Ω

MAIN und REMOTE

8 Ω ~ 16 Ω

ALLGEMEINE DATEN

Leistungsaufnahme

760 W

Netzspannung

Wechselstrom 50 Hz/60 Hz, 110V/120V/220V/240V

Abmessungen (B×H×T)

430 × 153 × 351 mm

Gewicht

12,5 kg

Bemerkung:

Der Gesamtklirrfaktor wurde mit einem digitalen Rauschspektrometer (Anlage HP. 3045) gemessen.

DONNEES TECHNIQUES Sujet à changement sans préavis.**[DIN 45 500]****SECTION AMPLIFICATEUR**

Puissance de sortie continue de 20 Hz~20 kHz,
les deux canaux en circuit $2 \times 80W (4\Omega)$
 $2 \times 70W (8\Omega)$

Puissance de sortie continue de 40 Hz~16 kHz,
les deux canaux en circuit $2 \times 80W (4\Omega)$
 $2 \times 70W (8\Omega)$

Puissance de sortie continue à 1 kHz
les deux canaux en circuit $2 \times 90W (4\Omega)$
 $2 \times 74W (8\Omega)$

Distorsion harmonique totale
à puissance nominale (20 Hz~20 kHz) 0,02% (4 Ω)
0,007% (8 Ω)
à puissance nominale (40 Hz~16 kHz) 0,02% (4 Ω)
0,007% (8 Ω)
à puissance nominale (1 kHz) 0,01% (4 Ω)
0,007% (8 Ω)
à demi-puissance (20 Hz~20 kHz) 0,007% (8 Ω)
à demi-puissance (1 kHz) 0,003% (8 Ω)
puissance de -26 dB à 1 kHz 0,05% (4 Ω)
puissance de 50 mW à 1 kHz 0,08% (4 Ω)

Distorsion d'intermodulation
à puissance nominale à 250 Hz: 8 kHz=4:1, 4 Ω 0,02%
à puissance nominale à 60 Hz: 7 kHz=4:1, SMPTE, 8 Ω 0,007%

Réponse de fréquences
les deux canaux en circuit, -3 dB
(THD 0.03%) 5 Hz~60 kHz (4 Ω)
(THD 0.02%) 5 Hz~60 kHz (8 Ω)

Bruit et ronflement résiduels (straight DC) 0,3 mV
Coefficient d'amortissement 30 (4 Ω), 60 (8 Ω)

Sensibilité et impédance d'entrée
PHONO, AIMANT MOBILE (PHONO MM) 2,5 mV/47k Ω
PHONO, BOBINE MOBILE (PHONO MC) 170 μ V/47 Ω
SYNTHONISATEUR, AUX (TUNER, AUX) 150 mV/36k Ω
BANDE 1, ENREGISTREMENT/LECTURE
(TAPE 1 REC/PLAY) 170 mV/39k Ω
BANDE 2 (TAPE 2) 150 mV/36k Ω

PHONO (tension d'entrée maximum, 1 kHz RMS THD 0.01%)
AIMANT MOBILE (MM) 150 mV
BOBINE MOBILE (MC) 10 mV

Réponse de fréquence
PHONO Courbe nominale RIAA
 $\pm 0,5$ dB (30 Hz~15 kHz)
SYNTHONISATEUR, AUX, BANDE (TUNER, AUX, TAPE)
(straight DC) DC~150 kHz (-3 dB)
+0 dB, -0,3 dB (20 Hz~20 kHz)

Signal/Bruità puissance nominale (4 Ω)

PHONO, AIMANT MOBILE (PHONO MM)

78 dB (86 dB, IHF, A)

PHONO, BOBINE MOBILE (PHONO MC)

68 dB (68 dB, IHF, A: 250 μ V input)

SYNTHONISATEUR, AUX (TUNER, AUX)

92 dB (IHF, A: 106 dB)

puissance de -26 dB (4 Ω)

PHONO, AIMANT MOBILE (PHONO MM)

67 dB

PHONO, BOBINE MOBILE (PHONO MC)

65 dB

SYNTHONISATEUR, AUX (TUNER, AUX)

68 dB

puissance de 50 mW (4 Ω)

PHONO, AIMANT MOBILE (PHONO MM)

64 dB

PHONO, BOBINE MOBILE (PHONO MC)

62 dB

SYNTHONISATEUR, AUX (TUNER, AUX)

65 dB

Réglage de la tonalité

BASSES (BASS)

50 Hz, +10 dB~ -10 dB

AIGUS (TREBLE)

20 kHz, +10 dB~ -10 dB

Filtre subsonique

20 kHz, -12 dB/oct.

Filtre coupe-hauts

7 Hz, -6 dB/oct.

Compensateur physiologique (volume à -30 dB)

50 Hz, +9 dB

Tension de sortie et impédance

SORTIE ENREGISTREMENT (REC OUT)

150 mV

ENREGISTREMENT/LECTURE BANDE 1

(TAPE 1 REC/PLAY)

30 mV/82 k Ω

Equilibrage des canaux, AUX 250 Hz~6 300 Hz

 $\pm 1,0$ dB

Séparation des canaux, AUX 1 kHz

55 dB

Niveau de sortie des casques et impédance

560 mV/330 Ω

Impédance de charge

PRINCIPALE ou AUXILIAIRE (MAIN or REMOTE)

4 Ω ~16 Ω

PRINCIPALE et AUXILIAIRE (MAIN and REMOTE)

8 Ω ~16 Ω **DIVERS**

Consommation

760W

Alimentation

CA 50 Hz/60 Hz, 110V/120V/220V/240V

Dimensions (L×H×Pr)

430 × 153 × 351 mm

Poids

1,2,5 kg

Remarque:

On mesure la distorsion harmonique totale au moyen d'un analyseur de spectre digital (Système HP. 3045).

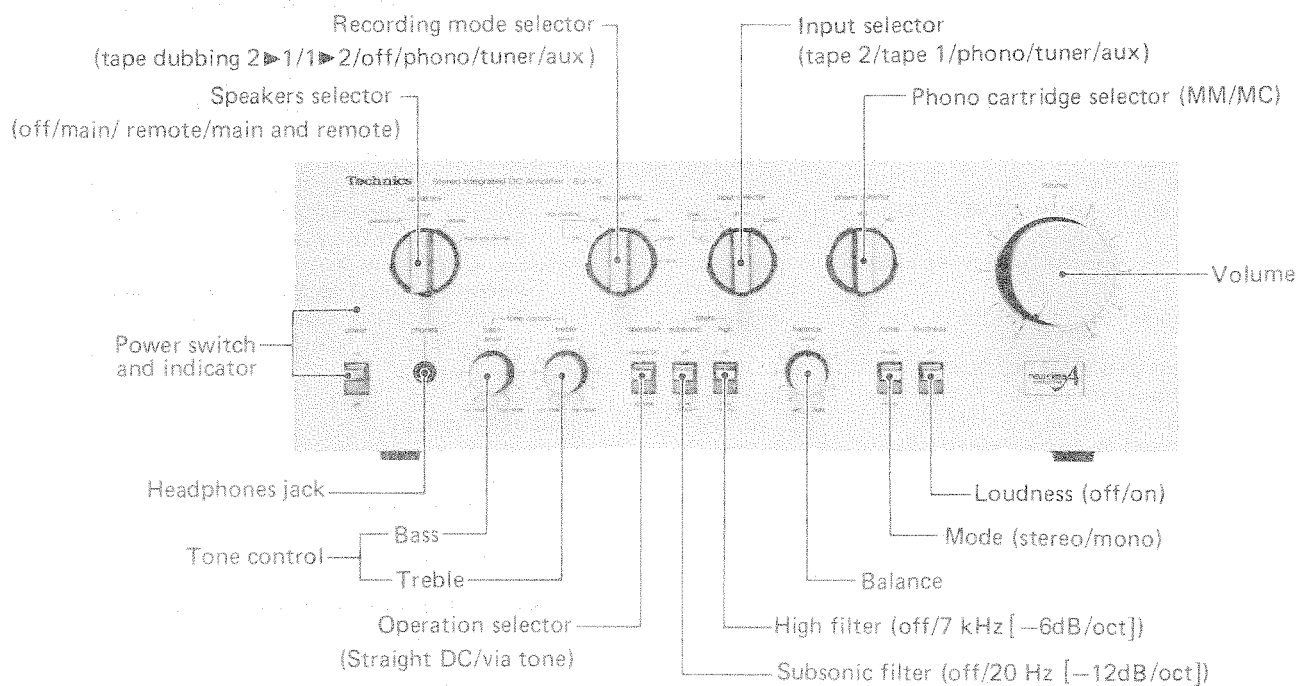
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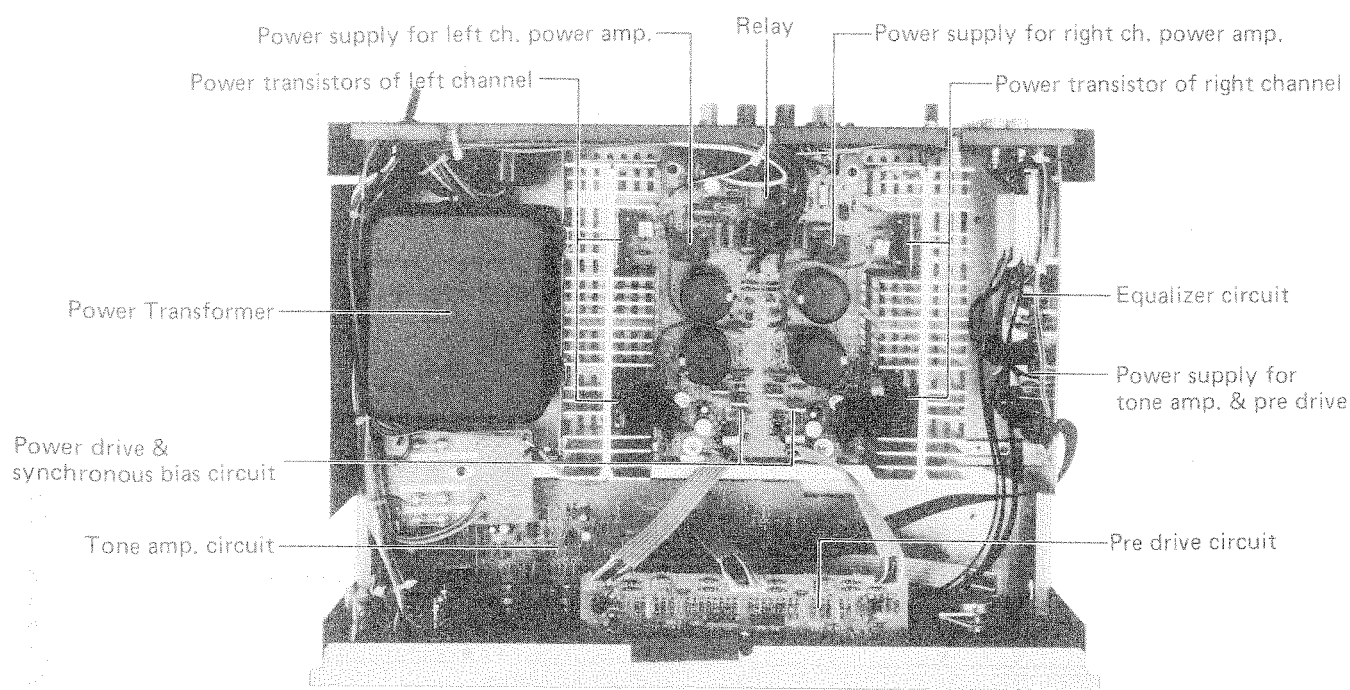
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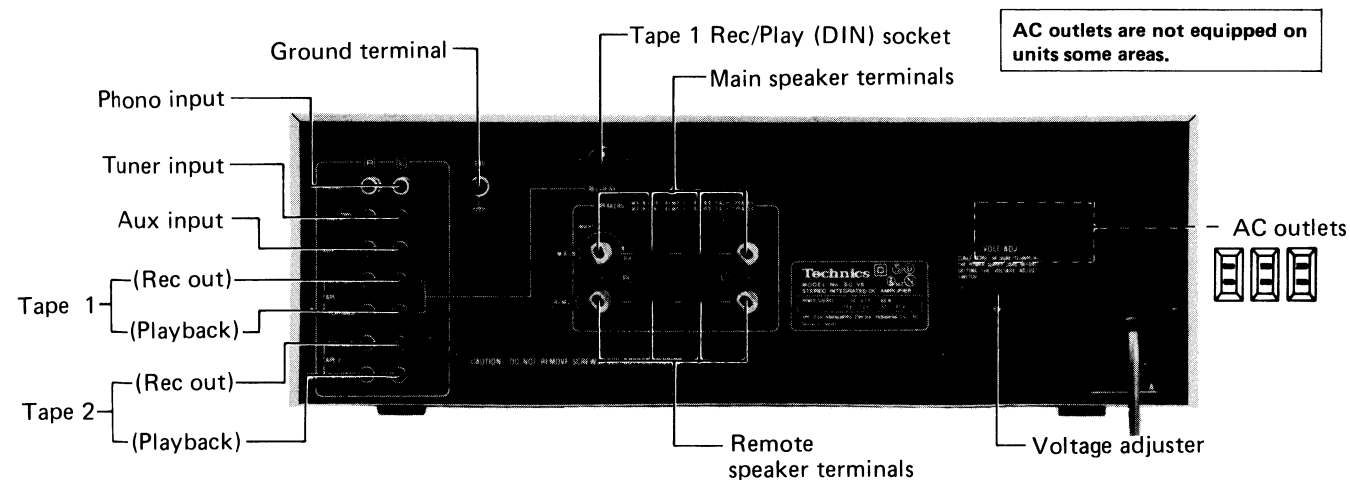
LOCATION OF CONTROLS

• Front side view



• Rear side view





■ OUTLINE OF THIS UNIT

In the world of amplifiers, the sound-quality and the output have been the two contradictory concepts. To obtain improved sound-quality within a limited budget the tendency is to lower the power output, on the other hand, larger output means a sacrifice in sound quality. Therefore, if better sound quality is required, it is beneficial to adopt Class A amplification method, and if large output power is

desired, it is wise to select Class B amplification method. This unit has employed the New Class A method to obtain a high output of 70W per channel with a distortion rate of 0.007% (For an 8 ohms load at rated output of 20Hz ~ 20kHz). This low cost stereo integrated amplifier, considering its high output, was developed as a successful combination of fine sound quality and high power output.

• Class B amplification and Class A amplification

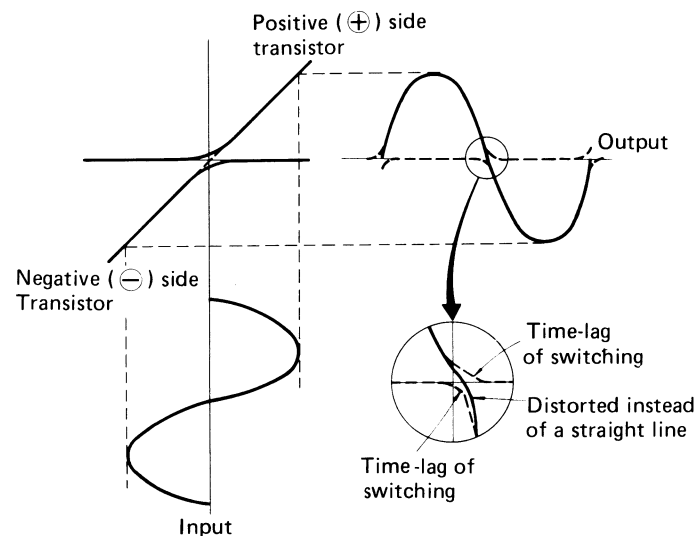
1. Class B amplification

Although Class B amplification has high power efficiency, it invariably introduces switching distortion due to its operating principle. As shown in Fig. 1, a transistor on the positive ($\oplus$) side amplifies the positive half of the signal, while a transistor on the negative ($\ominus$) side amplifies the negative half of the signal.

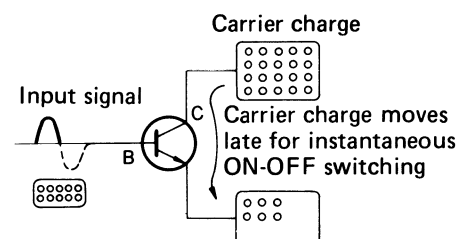
Since only one transistor on either $\oplus$ or $\ominus$ side works at any given time, less heat is generated and the power efficiency is higher. However, the switching process is not a smooth one between $\oplus$ and $\ominus$ or between $\ominus$ and $\oplus$, resulting in distortion. The faster the speed of a signal (higher frequency) is, (as shown in Fig. 2) the more difficult it is for the transistor to catch up instantaneously and the later the carrier charge on the output sides moves (distorted). In recent years, new transistors were developed which can respond to high speeds at high frequencies and which help to improve the distortion greatly though it is difficult to eliminate the distortion completely.

2. Class A amplification

As the transistors on positive ($\oplus$) and negative ($\ominus$) sides amplify signals continuously, switching is not necessary. Accordingly, no switching distortion exists. However, power efficiency becomes very low because this method requires a large current even when there is no signal to be amplified and more heat is generated.



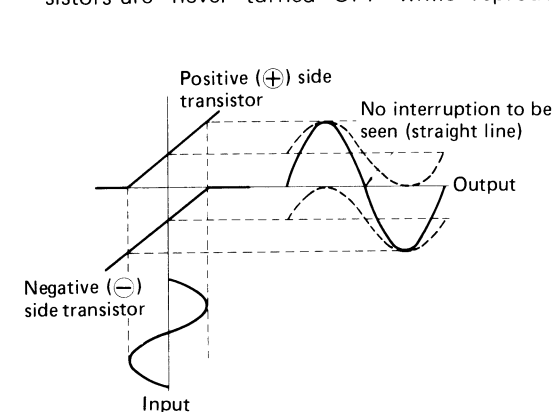
(Operation of Class B amplifier)
Fig. 1



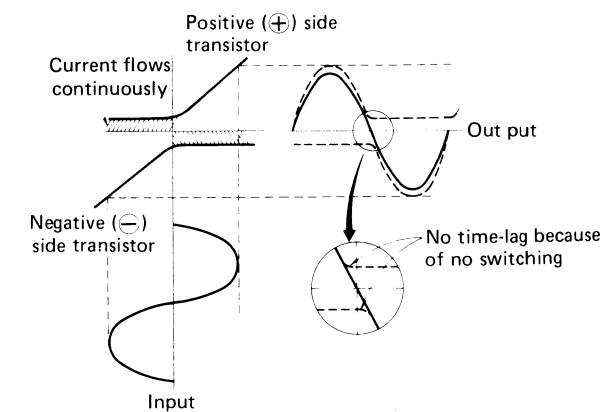
(Transition of electric charge inside the transistor)
Fig. 2

• New Class A amplification method

This method combines and utilizes the advantages of Class A, B, or Class AB amplification methods to eliminate distortion and to assure almost equal power efficiency to that of the Class B amplification. The function of the synchronous bias circuit allows a certain constant flow of current in transistors on the positive ($\oplus$) and negative ($\ominus$) sides, the output transistors are never turned OFF while reproducing any

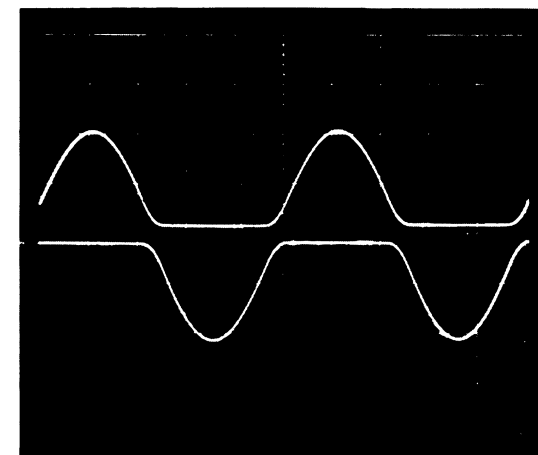


(Operation of Class A amplifier)
Fig. 3



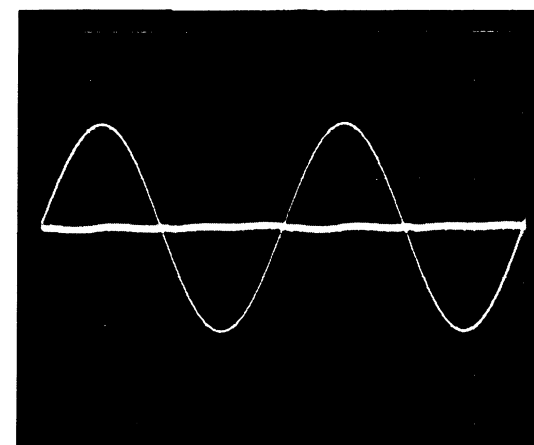
(Operation of New Class A amplifier)
Fig. 4

• Collector current wave forms

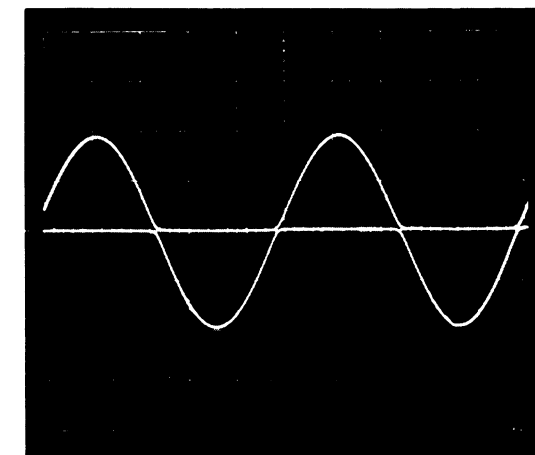


(New Class A amplifier)
Photo 1

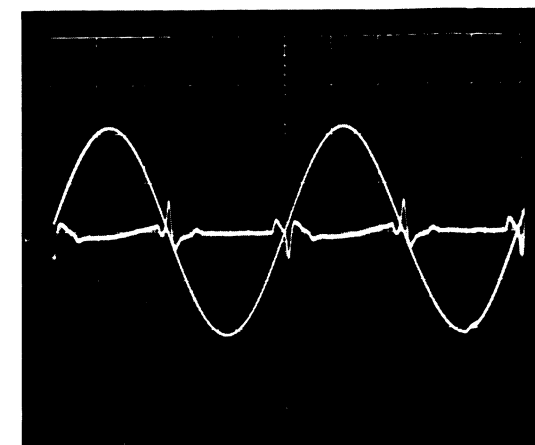
• Output signal and distortion wave forms



(New Class A amplifier)
Photo 3



(Class B amplifier)
Photo 2



(Class B amplifier)
Photo 4

TECHNICAL INSTRUCTIONS

The following diagram indicates the synchronous bias circuit of this unit. (The diagram shown is only for the right channel, but it is identical for the left channel). The first stage consists of a differential circuit (Q306), a current mirror load (Q304) and an emitter follower (Q308). The driver circuit consists of the voltage amplifier stage (Q310) having current stabilizer load (Q312) and the SEPP voltage amplifier stage (Q614, Q616). Its emitter follower output works as a Class A amplifier by bias 1. This in turn is connected to the SEPP final stage of the Darlington output

- When no signal exists:
The idling current (ICQ) of output transistors (Q622, Q624) is the sum of the current ICQ 1 determined by bias 1 and the current ICQ 2 determined by bias 2 and bias 3.

That is, $I_{CQ} = I_{CQ\ 1} + I_{CQ\ 2}$

where, $I_{CQ\ 1} = \frac{V_F\ 1 - (V_{BE\ 1} + V_{BE\ 2} + V_{BE\ 3} + V_{BE\ 4} + V_{BE\ 5} + V_{BE\ 6} + V_D\ 1 + V_D\ 2)}{2R_E}$

$I_{CQ\ 2} = \frac{2V_F\ 2 - (V_{BE\ 3} + V_{BE\ 4} + V_{BE\ 5} + V_{BE\ 6} + V_D\ 3 + V_D\ 4)}{2R_E}$

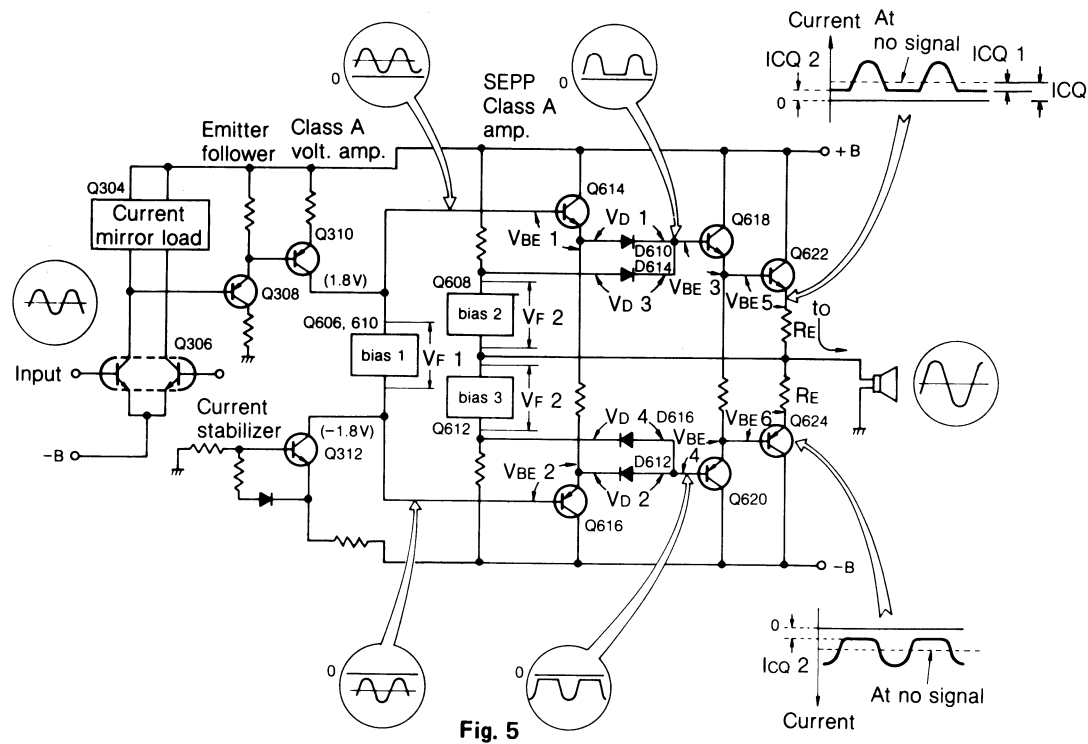
- When signals are applied:
When signals swing to the positive (⊕) side, the current I_o flows into the output stage (Q622) on the positive (⊕) side, generating a voltage RE I_o at the emitter resistor RE. This reduces the collector current on the negative (⊖) side of the output stage due to bias 1. Since bias 3 acts as a fixed voltage source, bias is applied to the negative (⊖) side transistors Q620 and Q624, and ICQ2 keeps flowing. That is, the negative (⊖) side output stage continues to operate without being cut-off. When the signals swing to the negative (⊖) side, the

- Operational check of synchronous bias circuit
To check the operation of the synchronous bias circuit:
1. Measure the emitter current with an oscilloscope connected to the emitter of output transistor.
2. Turn the bias.2 and bias 3 (R659 in left channel; semi-fixed volume for clamp voltage adjustment of

circuit through the synchronous bias circuit by bias 2 and 3. We can consider this a three-stage-Darlington output circuit, where a synchronous bias circuit is inserted between the first SEPP Class A amplifier and the second SEPP stage. Bias 2 and 3 are the circuits that prevent the output stage on the positive (⊕) side (for bias 2) and on the negative (⊖) side (for bias 3) from turning OFF during the reproduction of any signals. Both operate on fixed current with the voltage set at the value of VF 2.

positive (⊕) side output stage remains operating in exactly the same way due to bias 2. That is, the signals are reproduced without switching. In the synchronous bias circuit, high speed diodes which can follow precisely and correctly the high frequency signals are used for D610 and D612 where the signals pass through and for D614 and D616 where the current flows to pass the signals without switching at the time of signal reproduction.

- R660 in right channel), then the operation is normal if ICQ 2 operates.
- If the circuits of bias 2 and 3 are not in operation, the operation will be the same as in a conventional Class B amplifier where switching distortion is generated.



ADJUSTING INSTRUCTIONS ENGLISH

- Setting of controls and instruments to be used
- Operation switch straight DC
 - Speaker switch main
 - Sound volume 0 (minimum)
 - DC voltmeter (capable to measure 5mV)

No.	Adjustments	DC Voltmeter Connections	Adjusting Point	Adjustment Procedure
1	DC Balance	L channel Between TP602 and ground	R353	- Adjust R353 to obtain a minimum reading, using the 100mV range on the DC voltmeter (within ±10mV) - Cut off the jumper wire (J301) if adjustment is not possible.
2		R channel Between TP604 and ground	R354	
3	Clamp Voltage	L channel Between TP605 and TP602 (minus probe) R channel Between TP604 and TP603 (minus probe)	R659 (L channel) R660 (R channel)	- Turn ICQ semi-fixed resistors R657, 658 to minimum. (counter-clockwise direction) - Adjust R659 (Lch) and R660 (Rch) to approx. 1mV after ten minutes warm-up time.
4	ICQ (Adjustment using a DC voltmeter)	L channel Between TP605 and TP602 (minus probe) R channel Between TP604 and TP603 (minus probe)	R657 (L channel) R658 (R channel)	Adjust R657 (L ch) and R658 (R ch) to approx. 10 ~ 15mV after ten minutes warm-up time.

- ICQ can be adjusted with oscilloscope and the distortion analyser.

- 1st Feed 20kHz sine wave into the TUNER or AUX terminals.
- 2nd Volume control to maximum of this unit.
- 3rd Connect the distortion analyser to the speaker terminals and connect the output from the distortion analyser to the vertical input of the oscilloscope.

- Instruments to be used
1. Oscillator (20kHz sine wave)
 2. Distortion analyser
 3. Oscilloscope
- 4th Turn the oscillator attenuator so that the output at the speaker terminal reaches 16V.
 - 5th Adjust the ICQ semi-fixed resistors R657 (left channel), R658 (right channel) for minimum distortion on the oscilloscope.

EINSTELLUNGSANWEISUNGEN — DEUTSCH

● Einstellung der zu benutzenden Regler und Instrumente

1. Betriebsschalter Gleichstrom (direkt)
2. Lautsprecherschalter . . .Hauptlautsprecher ("main")
3. Lautstärke "0" (Minimalstellung)
4. Gleichstromvoltmeter. . 5mV Meßbereich erforderlich.

Nr.	Einstellungen	Gleichstromvoltmeterverbindungen	Einstellungspunkte	Einstellungsvorgang
1	Gleichstrom-balance	L-Kanal. Zwischen TP602 und Masse.	R353	* Durch Benutzung des 100mV-Bereiches (innerhalb von $\pm 10\text{mV}$) des Gleichstrom-voltmeters, den regelbaren Widerstand R353 auf minimalen Wert einstellen. * Wenn eine Einstellung nicht möglich ist, die Schaltader (J301) abtrennen.
2		R-Kanal. Zwischen TP604 und Masse.	R354	* Durch Benutzung des 100mV-Bereiches (innerhalb von $\pm 10\text{mV}$) des Gleichstrom-voltmeters, den regelbaren Widerstand R354 auf minimalen Wert einstellen. * Wenn eine Einstellung nicht möglich ist, die Schaltader (J302) abtrennen.
3	Klemmspannung	L-Kanal. Zwischen TP605 und TP602 (Minustest) R-Kanal. Zwischen TP604 und TP603 (Minustest)	R659 (L-Kanal) R660 (R-Kanal)	* Die Icq halbfeingestellten Widerstände R657 und R658 auf Minimalstellung drehen. (Entgegen dem Uhrzeigersinn) * R659 (L-Kanal) und R660 (R-Kanal) auf ungefähr 1mV, nach 10 Minuten Anwärmezeit, einstellen.
4	Icq (Einstellungen mit einem Gleichstrom-voltmeter)	L-Kanal. Zwischen TP605 und TP602 (Minustest) R-Kanal. Zwischen TP604 und TP603 (Minustest)	R657 (L-Kanal) R658 (R-Kanal)	* R657 (L-Kanal) und R658 (R-Kanal) auf ungefähr 10 ~ 15mV, nach 10 Minuten Anwärmezeit, einstellen.

● Icq Kann mit einem Oszilloskop und dem Verzerrungsanalyser eingestellt werden.

Zu benutzende Instrumente

1. Schwingungserreger (20kHz sinus)
2. Verzerrungsanalyser
3. Oszilloskop

Erster Schritt: Die 20kHz Sinuswelle in die TUNER-oder AUX-Buchsen eingeben.

Zweiter Schritt: Den Lautstärkereglers dieses Gerätes auf Maximalstellung bringen.

Dritter Schritt: Den Verzerrungsanalyser mit den Lautsprecherklemmen verbinden, und den Ausgang des Verzerrungsanalysers mit dem Vertikaleingang des Oszilloskops verbinden.

Vierter Schritt: Den Eichungsregler des Oszilloskops auf eine Weise regeln, daß der Ausgang der Lautsprecherklemmen auf 16Volt kommt.

Fünfter Schritt: Den Icq halbeinstellbaren Widerstand R657 (L-Kanal) und R658 (R-Kanal), auf minimale Verzerrungsanzeige dem Oszilloskop einstellen.

INSTRUCTIONS DE REGLAGE — FRANÇAIS

● Réglage des commandes et instruments à utiliser

1. Commutateur de marche/arrêt CC direct
2. Commutateur du haut-parleur Principal
3. Volume du son 0 (minimum)
4. Voltmètre CC (pouvant mesurer 5mV)

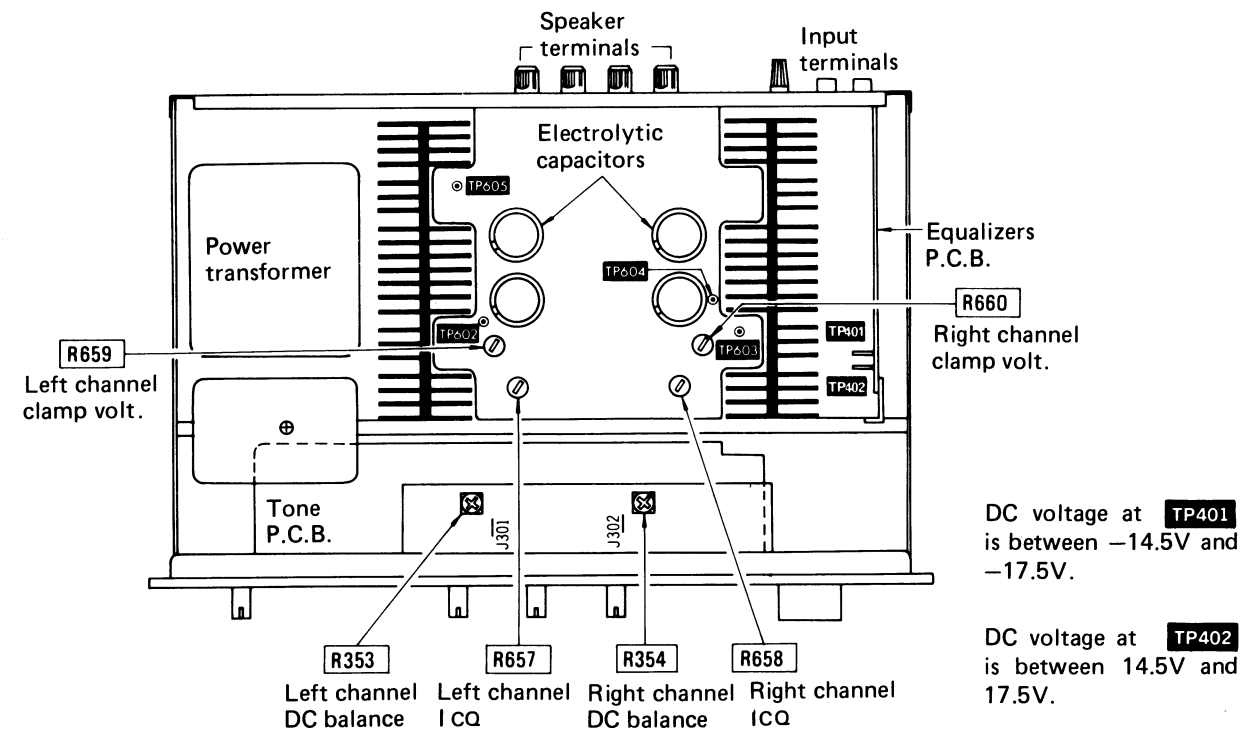
No.	Réglages	Connexions du voltmètre CC	Point de réglage	Procédé de réglage
1	Equilibre CC	Canal gauche Entre TP602 et la masse	R353	* Régler R353 pour obtenir une lecture minimale, à l'aide de la gamme de 100mV sur le voltmètre CC (avec $\pm 10\text{mV}$) * Couper le fil volant (J301) si le réglage est impossible.
2		Canal droite Entre TP604 et la masse	R354	* Régler R354 pour obtenir une lecture minimale, à l'aide de la gamme de 100mV sur le voltmètre CC (avec $\pm 10\text{mV}$) * Couper le fil volant (J302) si le réglage est impossible.
3	Tension de blocage	Canal G. Entre TP605 et TP602 (sonde au moins) Canal D. Entre TP604 et TP603 (sonde au moins)	R659 (Canal G) R660 (Canal D)	* Tourner les résistances R657, 658 semi-fixes Icq sur le minimum. (à gauche) * Régler R659 (canal gauche) et R650 (canal droit) sur env. 1mV après 10 minutes de temps de chauffage.
4	Icq (réglage à l'aide d'un voltmètre CC)	Canal G. Entre TP605 et TP602 (sonde au moins) Canal D. Entre TP604 et TP603 (sonde au moins)	R657 (Canal G) R658 (Canal D)	* Régler les R657 (canal gauche) et R658 (canal droit) sur env. 10 ~ 15mV après 10 mn. de préchauffage.

● Icq peut être réglé à l'aide d'un oscilloscope et un analyseur de distorsion.

Instruments à utiliser

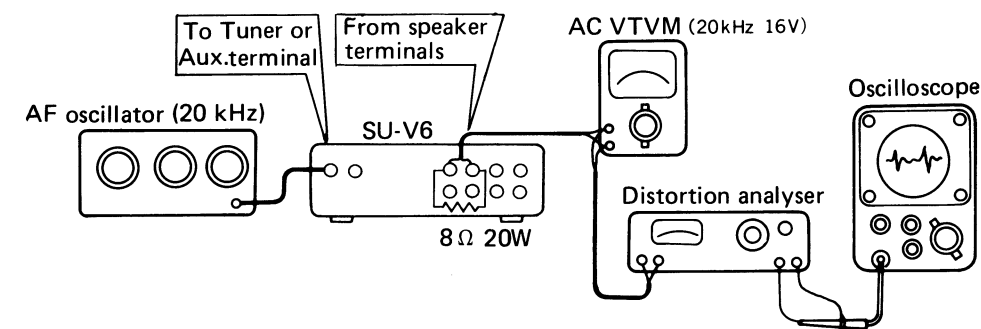
1. Oscillateur (onde sinusoïdale de 20kHz)
2. Analyseur de distorsion
3. Oscilloscope

1. Alimenter une onde sinusoïdale de 20kHz aux bornes TUNER et AUX.
2. Placer la commande de volume, sur le maximum de cet appareil.
3. Brancher l'analyseur de distorsion aux bornes du haut-parleur et brancher la sortie de l'analyseur de distorsion à l'entrée verticale de l'oscilloscope.
4. Tourner l'atténuateur de l'oscillateur de telle sorte que la sortie à la borne du haut-parleur, atteigne 16V.
5. Régler les résistances R657 (canal gauche) et R658 (canal droit) semi-fixes Icq sur la distorsion minimale de l'oscilloscope.



(Gleichstromspannung am Testpunkt **TP401** zwischen -14.5V und -17.5V .)
 (Gleichstromspannung am Testpunkt **TP402** zwischen 14.5V und 17.5V .)
 (La tension CC à **TP401** est entre -14.5V et -17.5V .)
 (La tension CC à **TP402** est entre 14.5V et 17.5V .)

Fig. 6



(Icq adjustment with the oscilloscope and the distortion analyser)
 (Icq-Einstellung mit Oszilloskop und Verzerrungsanalyser)
 (Réglage de Icq à l'aide de l'oscilloscope et de l'analyseur de distorsion.)

Fig. 7

BEFORE STARTING THE REPAIRING

Before adjusting or repairing, be sure to short-circuit opposite poles of the 8200 μ F capacitors (C405~408) with a resistor approximately of "50 Ω , 5W" for discharging the charged voltage. Short-circuiting with a screw driver and the like is not only dangerous, but may destroy transistors and diodes, and should therefore be avoided.

DISASSEMBLY INSTRUCTIONS

- **To remove power Transistor** (example:left channel)
 1. Unsolder Power Transistor.
 2. Loosen two screws (① and ②) as shown in Fig. 8) which hold the heat sink onto the foil side of the P.C.B.
 3. Loosen plastic revets which hold the bias circuit PCB's (Q605, 607, 609 and 611) to the heat sink. The PCB's are about 1" x 1.5"(25 x 35mm) insize.
 4. Lift the heat sink from the chassis and loosen two screws to remove the power transistor.
 5. When replacing the transistor, apply silicone grease to the bottom of the transistor and reverse the procedure (steps 4 through 1).

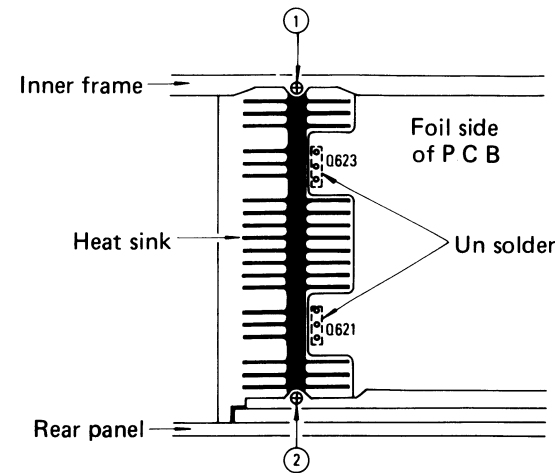


Fig. 8

- **To remove the remote control switch band**
 1. Press the band with a screw driver in the direction shown in Fig. 9.
 2. Remove the band, first at point (A) as shown in Fig. 10. (Care should be taken not to hold (C) in Fig. 9.)
 3. Then remove the band at point (B).
 4. When re-attaching the band start at point (B).

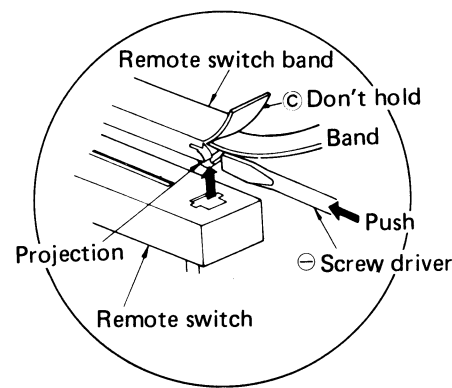


Fig. 9

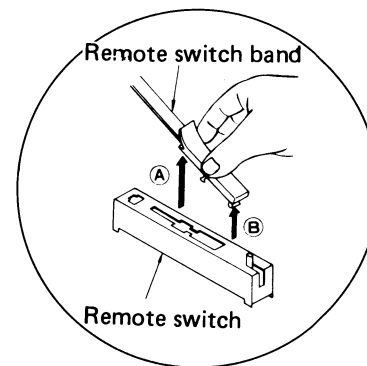
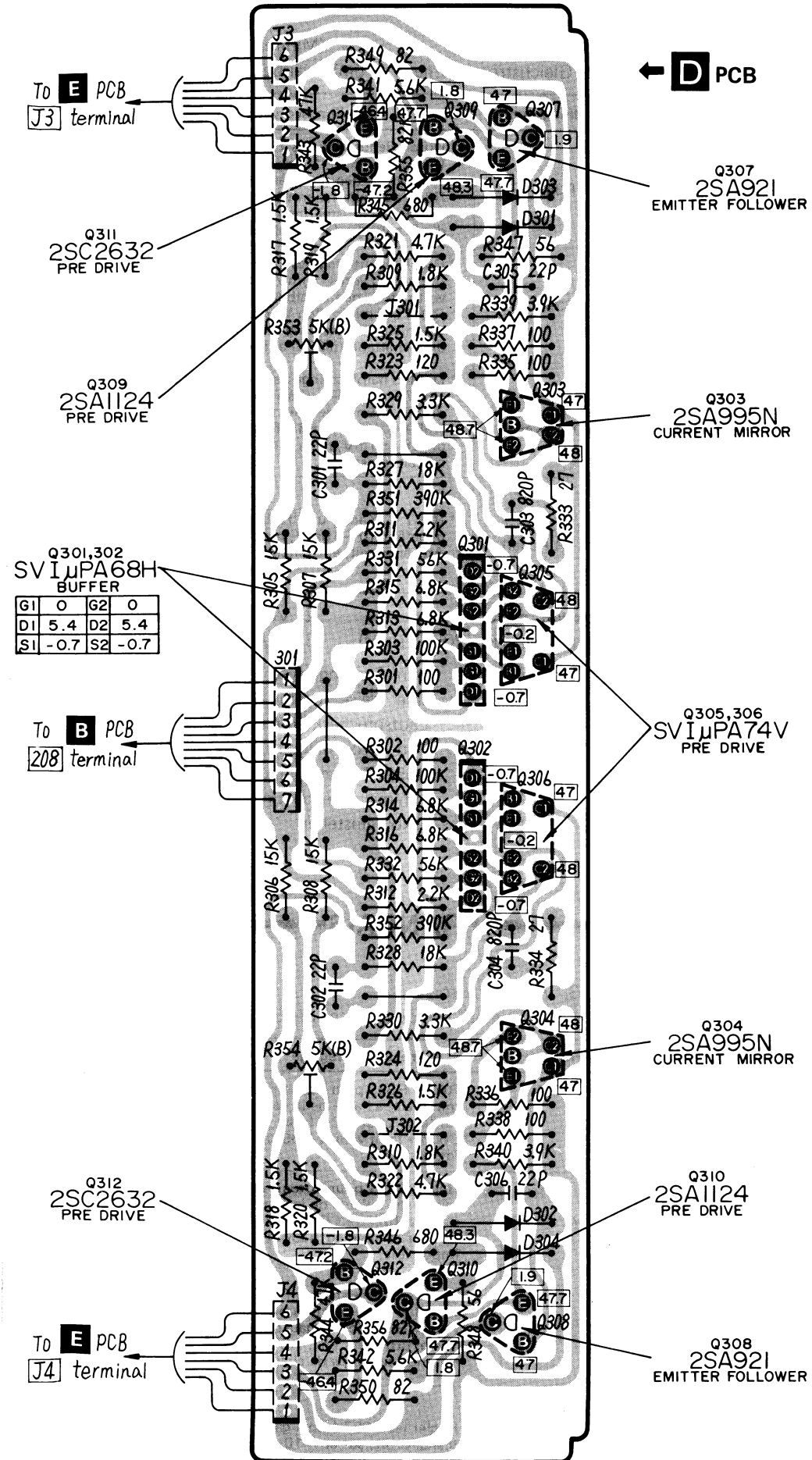


Fig. 10

PRINTED CIRCUIT BOARD (D Pre drive circuit)



Terminal guide of transistors and IC's

2SA921 2SA1015 2SC1015 2SC2632	2SA1124 2SC2632	2SD381 2SB536
2SK34	2SK170	
SV1 μ PA68H	SVITA7317P	
2SA995	2SA913 2SC1913	
2SB745 2SD661	2SB755 2SD845	
AN6552	SVINJM4559DS	
SV1 μ PA74V		① Base 1 ② Collector 1 ③ Emitter 1 ④ N.C. ⑤ Sub ⑥ N.C. ⑦ Emitter 2 ⑧ Collector 2 ⑨ Base 2

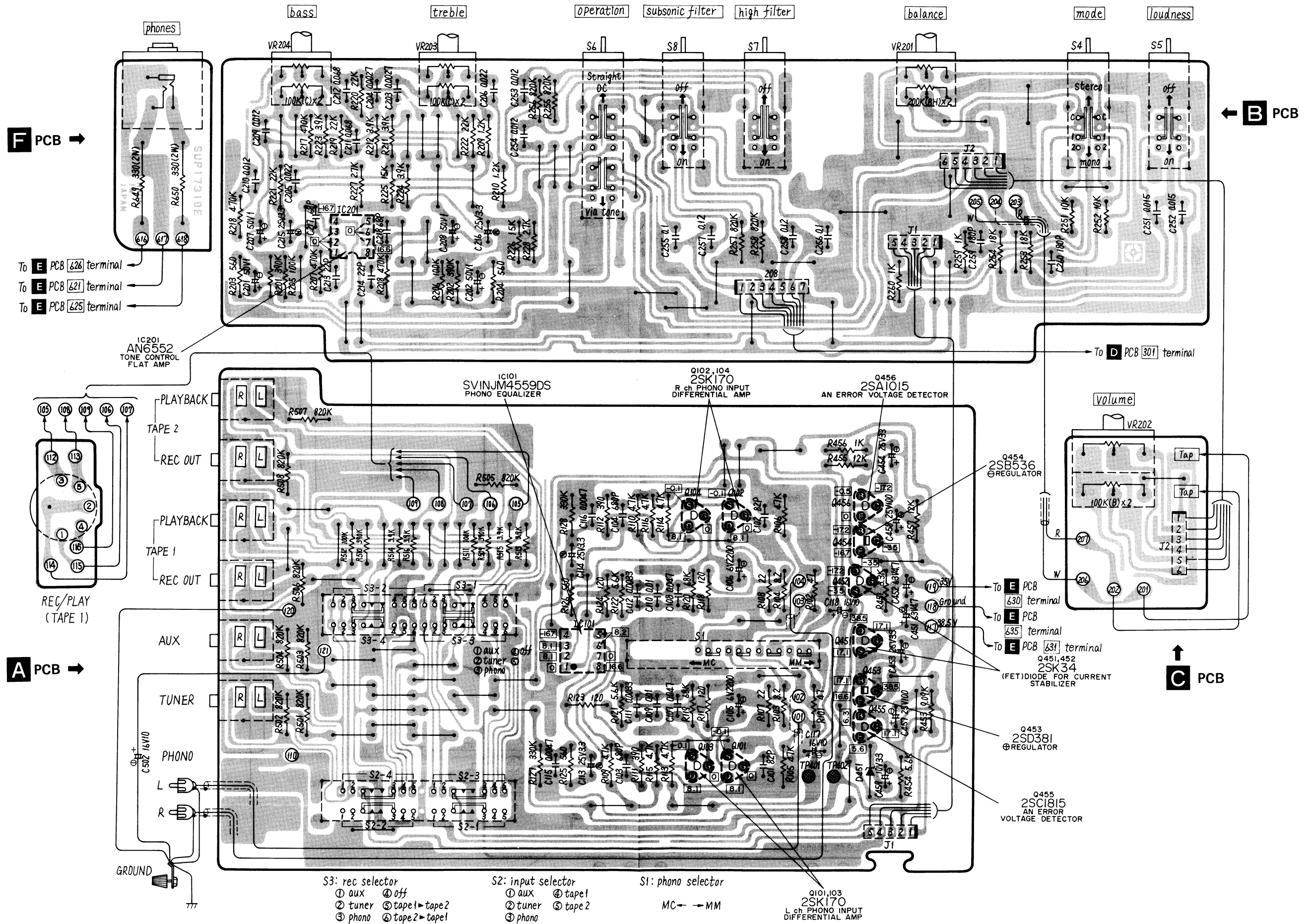
SU-V6

SU-V6

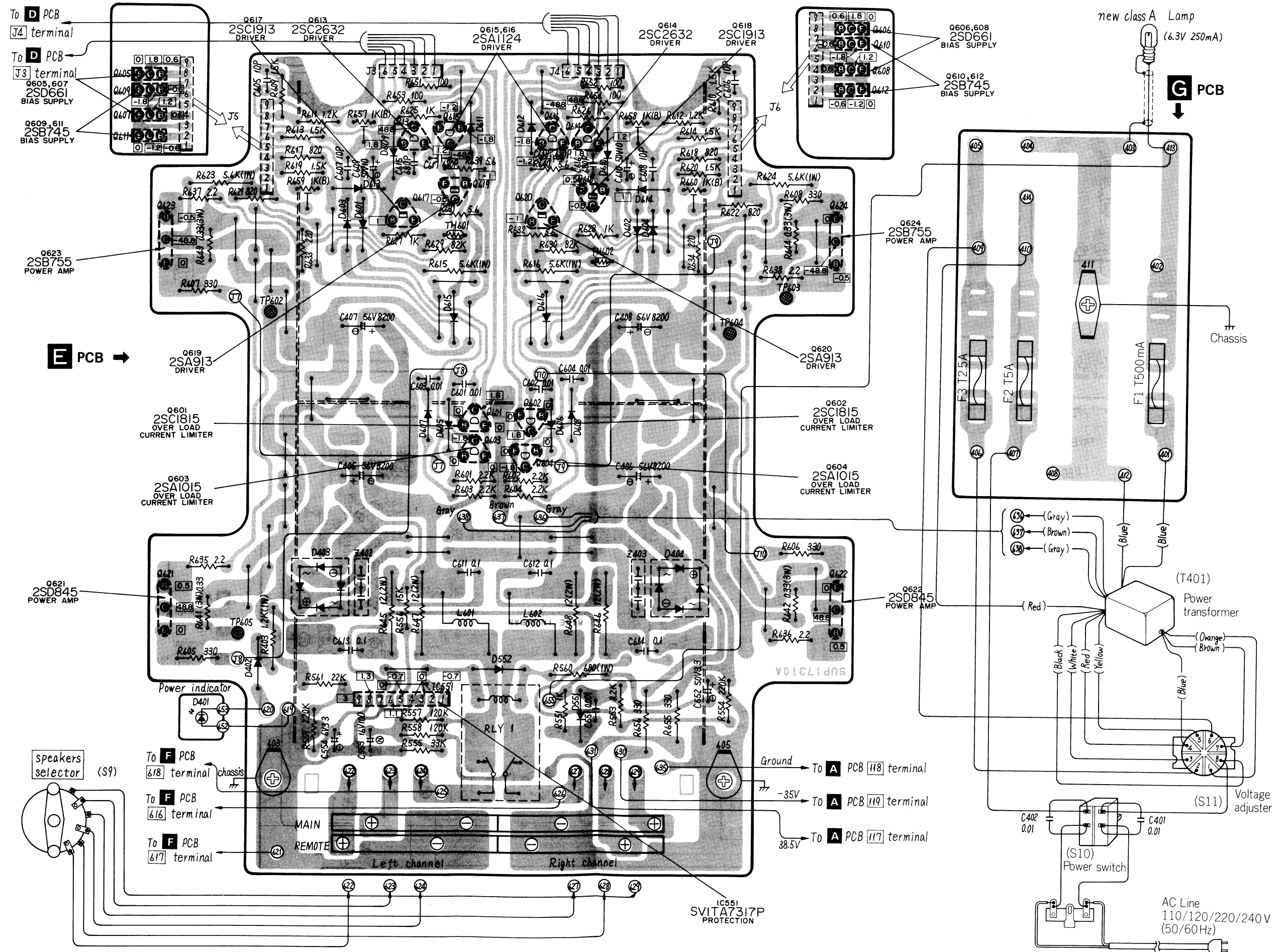
PRINTED CIRCUIT BOARD

[A] Equalizer/Voltage regulator, [B] Tone control, [C] Volume control, [F] Headphone circuit

Ground (Earth) circuit



■ PRINTED CIRCUIT BOARD (E Power amplifier drive & synchronous bias circuits, G Power source fuse)



■ RESISTOR AND CAPACITOR PARTS LIST

Note: Δ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.	Part Name & Description
RESISTORS		
R101, 102	ERO25CKF47R0	Metal Film, 47 Ω , 1/4W, $\pm$ 1%
R103, 104	ERD25FJ8R2	Carbon, 8.2 Ω , 1/4W, $\pm$ 5%
R105, 106	ERO25CKF4702	Metal Film, 47k Ω , 1/4W, $\pm$ 1%
R107, 108	ERO25CKF22R1	Metal Film, 22.1 Ω , 1/4W, $\pm$ 1%
R109, 110	ERO25CKF4701	Metal Film, 4.7k Ω , 1/4W, $\pm$ 1%
R111, 112	ERD25FJ391	Carbon, 390 Ω , 1/4W, $\pm$ 5%
R113, 114	ERO25CKF4701	Metal Film, 4.7k Ω , 1/4W, $\pm$ 1%
R115, 116	ERO25CKF4701	Metal Film, 4.7k Ω , 1/4W, $\pm$ 1%
R117, 118	ERO25CKF1200	Metal Film, 120 Ω , 1/4W, $\pm$ 1%
R119, 120	ERO25CKF6802	Metal Film, 68k Ω , 1/4W, $\pm$ 1%
R121, 122	ERO25CKF5601	Metal Film, 5.6k Ω , 1/4W, $\pm$ 1%
R123, 124	ERO25CKF1200	Metal Film, 120 Ω , 1/4W, $\pm$ 1%
R125, 126	ERD25FJ561	Carbon, 560 Ω , 1/4W, $\pm$ 5%
R127, 128	ERD25FJ334	Carbon, 330k Ω , 1/4W, $\pm$ 5%
R201, 202	ERD25TJ394	Carbon, 390k Ω , 1/4W, $\pm$ 5%
R203, 204	ERD25FJ561	Carbon, 560 Ω , 1/4W, $\pm$ 5%
R205, 206	ERD25TJ104	Carbon, 100k Ω , 1/4W, $\pm$ 5%
R207, 208	ERD25TJ474	Carbon, 470k Ω , 1/4W, $\pm$ 5%
R209, 210	ERD25FJ122	Carbon, 1.2k Ω , 1/4W, $\pm$ 5%
R211, 212	ERD25FJ392	Carbon, 3.9k Ω , 1/4W, $\pm$ 5%
R217, 218	ERD25TJ474	Carbon, 470k Ω , 1/4W, $\pm$ 5%
R219, 220	ERD25TJ223	Carbon, 22k Ω , 1/4W, $\pm$ 5%
R221, 222	ERD25TJ223	Carbon, 22k Ω , 1/4W, $\pm$ 5%
R223, 224	ERD25FJ392	Carbon, 3.9k Ω , 1/4W, $\pm$ 5%
R225, 226	ERD25TJ153	Carbon, 15k Ω , 1/4W, $\pm$ 5%
R227, 228	ERD25FJ272	Carbon, 2.7k Ω , 1/4W, $\pm$ 5%
R251, 252	ERD25FJ103	Carbon, 10k Ω , 1/4W, $\pm$ 5%
R253, 254	ERD25TJ183	Carbon, 18k Ω , 1/4W, $\pm$ 5%
R255, 256	ERD25TJ824	Carbon, 820k Ω , 1/4W, $\pm$ 5%
R257, 258	ERD25TJ824	Carbon, 820k Ω , 1/4W, $\pm$ 5%
R259, 260	ERD25FJ102	Carbon, 1k Ω , 1/4W, $\pm$ 5%
R301, 302	ERD25FJ101	Carbon, 100 Ω , 1/4W, $\pm$ 5%
R303, 304	ERD25TJ104	Carbon, 100k Ω , 1/4W, $\pm$ 5%
R305, 306	ERD25TJ153	Carbon, 15k Ω , 1/4W, $\pm$ 5%
R307, 308	ERD25TJ153	Carbon, 15k Ω , 1/4W, $\pm$ 5%
R309, 310	ERD25FJ182	Carbon, 1.8k Ω , 1/4W, $\pm$ 5%
R311, 312	ERD25FJ222	Carbon, 2.2k Ω , 1/4W, $\pm$ 5%
R313, 314	ERO25CKF6801	Metal Film, 6.8k Ω , 1/4W, $\pm$ 1%
R315, 316	ERO25CKF6801	Metal Film, 6.8k Ω , 1/4W, $\pm$ 1%
R317, 318	ERD25FJ152	Carbon, 1.5k Ω , 1/4W, $\pm$ 5%
R319, 320	ERD25FJ152	Carbon, 1.5k Ω , 1/4W, $\pm$ 5%
R321, 322	ERD25FJ472	Carbon, 4.7k Ω , 1/4W, $\pm$ 5%
R323, 324	ERO25CKF1200	Metal Film, 120 Ω , 1/4W, $\pm$ 1%
R325, 326	ERD25FJ152	Carbon, 1.5k Ω , 1/4W, $\pm$ 5%
R327, 328	ERD25FJ183	Carbon, 18k Ω , 1/4W, $\pm$ 5%
R329, 330	ERO25CKF3301	Metal Film, 3.3k Ω , 1/4W, $\pm$ 1%
R331, 332	ERD25TJ563	Carbon, 56k Ω , 1/4W, $\pm$ 5%
R333, 334	ERD25FJ270	Carbon, 27 Ω , 1/4W, $\pm$ 5%
R335, 336	ERD25FJ101	Carbon, 100 Ω , 1/4W, $\pm$ 5%
R337, 338	ERD25FJ101	Carbon, 100 Ω , 1/4W, $\pm$ 5%
R339, 340	ERD25FJ392	Carbon, 3.9k Ω , 1/4W, $\pm$ 5%
R341, 342	ERD25FJ562	Carbon, 5.6k Ω , 1/4W, $\pm$ 5%
R343, 344	ERD25TJ473	Carbon, 47k Ω , 1/4W, $\pm$ 5%
R345, 346	ERD25FJ681	Carbon, 680 Ω , 1/4W, $\pm$ 5%
R347, 348	ERD25FJ560	Carbon, 56 Ω , 1/4W, $\pm$ 5%
R349, 350	ERD25FJ820	Carbon, 82 Ω , 1/4W, $\pm$ 5%
R351, 352	ERD25TJ394	Carbon, 390k Ω , 1/4W, $\pm$ 5%
R355, 356	ERD25TJ823	Carbon, 82k Ω , 1/4W, $\pm$ 5%
R403	ERG1ANJ122	Metal Oxide, 1.2k Ω , 1W, $\pm$ 5%
R451	ERD25FJ332	Carbon, 3.3k Ω , 1/4W, $\pm$ 5%
R453	ERO25CKF9091	Metal Film, 9.09k Ω , 1/4W, $\pm$ 1%
R454	ERO25CKF5601	Metal Film, 5.6k Ω , 1/4W, $\pm$ 1%
R455	ERO25CKF1202	Metal Film, 12k Ω , 1/4W, $\pm$ 1%
R456	ERD25FJ102	Carbon, 1k Ω , 1/4W, $\pm$ 5%
R457	ERO25CKF1202	Metal Film, 12k Ω , 1/4W, $\pm$ 1%
R501, 502	ERD25TJ824	Carbon, 820k Ω , 1/4W, $\pm$ 5%
R503, 504	ERD25TJ824	Carbon, 820k Ω , 1/4W, $\pm$ 5%
R505, 506	ERD25TJ824	Carbon, 820k Ω , 1/4W, $\pm$ 5%
R507, 508	ERD25TJ824	Carbon, 820k Ω , 1/4W, $\pm$ 5%
R509, 510	ERD25TJ394	Carbon, 390k Ω , 1/4W, $\pm$ 5%
R511, 512	ERD25TJ104	Carbon, 100k Ω , 1/4W, $\pm$ 5%
R513, 514	ERD25FJ392	Carbon, 3.9k Ω , 1/4W, $\pm$ 5%
R515, 516	ERD25FJ392	Carbon, 3.9k Ω , 1/4W, $\pm$ 5%
R551	ERD25FJ102	Carbon, 1k Ω , 1/4W, $\pm$ 5%
R553	ERD25FJ822	Carbon, 8.2k Ω , 1/4W, $\pm$ 5%
R554	ERD25TJ224	Carbon, 220k Ω , 1/4W, $\pm$ 5%
R555	ERD25TJ333	Carbon, 33k Ω , 1/4W, $\pm$ 5%
R556	ERD25TJ153	Carbon, 15k Ω , 1/4W, $\pm$ 5%
R557, 558	ERD25TJ124	Carbon, 120k Ω , 1/4W, $\pm$ 5%

Ref. No.	Part No.	Part Name & Description
R559	ERD25TJ224	Carbon, 220k Ω , 1/4W, $\pm$ 5%
R560	ERG1ANJ681	Metal Oxide, 680 Ω , 1W, $\pm$ 5%
R561	ERD25TJ223	Carbon, 22k Ω , 1/4W, $\pm$ 5%
R601, 602	ERD25FJ222	Carbon, 2.2k Ω , 1/4W, $\pm$ 5%
R603, 604	ERD25FJ222	Carbon, 2.2k Ω , 1/4W, $\pm$ 5%
R605, 606	ERD25FJ331	Carbon, 330 Ω , 1/4W, $\pm$ 5%
R607, 608	ERD25FJ331	Carbon, 330 Ω , 1/4W, $\pm$ 5%
R609, 610	ERD25FJ152	Carbon, 1.5k Ω , 1/4W, $\pm$ 5%
R611, 612	ERD25FJ122	Carbon, 1.2k Ω , 1/4W, $\pm$ 5%
R613, 614	ERD25FJ152	Carbon, 1.5k Ω , 1/4W, $\pm$ 5%
R615, 616	ERG1ANJ562	Metal Oxide, 5.6k Ω , 1W, $\pm$ 5%
R617, 618	ERD25FJ821	Carbon, 820 Ω , 1/4W, $\pm$ 5%
R619, 620	ERD25FJ152	Carbon, 1.5k Ω , 1/4W, $\pm$ 5%
R621, 622	ERD25FJ821	Carbon, 820 Ω , 1/4W, $\pm$ 5%
R623, 624	ERG1ANJ562	Metal Oxide, 5.6k Ω , 1W, $\pm$ 5%
R625, 626	ERD25FJ102	Carbon, 1k Ω , 1/4W, $\pm$ 5%
R627, 628	ERD25FJ102	Carbon, 1k Ω , 1/4W, $\pm$ 5%
R629, 630	ERD25TJ823	Carbon, 82k Ω , 1/4W, $\pm$ 5%
R631, 632	ERD25FJ5R6	Carbon, 5.6 Ω , 1/4W, $\pm$ 5%
R633, 634	ERD25FJ221	Carbon, 220 Ω , 1/4W, $\pm$ 5%
R635, 636	ERD25FJ2R2	Carbon, 2.2 Ω , 1/4W, $\pm$ 5%
R637, 638	ERD25FJ2R2	Carbon, 2.2 Ω , 1/4W, $\pm$ 5%
R639, 640	ERD25FJ5R6	Carbon, 5.6 Ω , 1/4W, $\pm$ 5%
R641, 642	ERF3RKR33	Non-Flammable, 0.33 Ω , 3W, $\pm$ 10%
R643, 644	ERF3RKR33	Non-Flammable, 0.33 Ω , 3W, $\pm$ 10%
R645, 646	ERG2ANJ120	Metal Oxide, 12 Ω , 2W, $\pm$ 5%
R647, 648	ERG2ANJ120	Metal Oxide, 12 Ω , 2W, $\pm$ 5%
R649, 650	ERG2ANJ331	Metal Oxide, 330 Ω , 2W, $\pm$ 5%
R651, 652	ERQ12HJ101	Fuse Type Metallic, 100 Ω , 1/2W, $\pm$ 5%
R653, 654	ERD25FJ101	Carbon, 100 Ω , 1/4W, $\pm$ 5%
R655, 656	ERQ12HJ331	Fuse Type Metallic, 330 Ω , 1/2W, $\pm$ 5%
CAPACITORS		
C101, 102	ECCD1H820K	Ceramic, 82pF, 50V, $\pm$ 10%
C103, 104	ECKD1H681KB	Ceramic, 680pF, 50V, $\pm$ 10%
C105, 106	ECEA0JS222	Electrolytic, 2200 μ F, 6.3V
C107, 108	ECQM1H473JZ	Polyester, 0.047 μ F, 50V, $\pm$ 5%
C109, 110	ECQM1H103JZ	Polyester, 0.01 μ F, 50V, $\pm$ 5%
C111, 112	ECQM1H332KZ	Polyester, 0.0033 μ F, 50V, $\pm$ 10%
C113, 114	ECEA25N3R3	Non-Polar Electrolytic, 3.3 μ F, 25V
C115, 116	ECQM1H472KZ	Polyester, 0.0047 μ F, 50V, $\pm$ 10%
C117, 118	ECEA1HS100	Electrolytic, 10 μ F, 50V
C201, 202	ECEA50M1R	Electrolytic, 1 μ F, 50V
C203, 204	ECQM1H272KZ	Polyester, 0.0027 μ F, 50V, $\pm$ 10%
C205, 206	ECQM1H223KZ	Polyester, 0.022 μ F, 50V, $\pm$ 10%
C207, 208	ECEA50Z1	Electrolytic, 1 μ F, 50V
C209, 210	ECQM1H123KZ	Polyester, 0.012 μ F, 50V, $\pm$ 10%
C211, 212	ECQM1H683KZ	Polyester, 0.068 μ F, 50V, $\pm$ 10%
C213, 214	ECCD1H220K	Ceramic, 22pF, 50V, $\pm$ 10%
C215, 216	ECEA25N3R3	Non-Polar Electrolytic, 3.3 μ F, 25V
C217, 218	ECCD1H680K	Ceramic, 68pF, 50V, $\pm$ 10%
C251, 252	ECQM1H153KZ	Polyester, 0.015 μ F, 50V, $\pm$ 10%
C253, 254	ECQM1H123KZ	Polyester, 0.012 μ F, 50V, $\pm$ 10%
C255, 256	ECQM1H104KZ	Polyester, 0.1 μ F, 50V, $\pm$ 10%
C257, 258	ECQM1H124KZ	Polyester, 0.12 μ F, 50V, $\pm$ 10%
C259, 260	ECCD1H181K	Ceramic, 180pF, 50V, $\pm$ 10%
C301, 302	ECCD1H220K	Ceramic, 22pF, 50V, $\pm$ 10%
C303, 304	ECKD1H821KB	Ceramic, 820pF, 50V, $\pm$ 10%
C305, 306	ECCD2H220K	Ceramic, 22pF, 500V, $\pm$ 10%
C401, 402	ECKDKC103PF	Ceramic, 0.01 μ F, 400VAC, $\pm$ 10%
C403 [XA] only	ECKDKC103PF	Ceramic, 0.01 μ F, 400VAC, $\pm$ 10%
C405, 406	ECETS56V822U	Electrolytic, 8200 μ F, 56V
C407, 408	ECETS56V822U	Electrolytic, 8200 μ F, 56V
C451, 452	ECEA1JS4R7	Electrolytic, 4.7 μ F, 63V
C453, 454	ECEA1VS330	Electrolytic, 33 μ F, 35V
C457, 458	ECEA1ES101	Electrolytic, 100 μ F, 25V
C459	ECEA1CS330	Electrolytic, 33 μ F, 16V
C502	ECEA1HS100	Electrolytic, 10 μ F, 50V
C551	ECKD1H102MD	Ceramic, 0.001 μ F, 50V, $\pm$ 20%
C552	ECEA50Z3R3	Electrolytic, 33 μ F, 50V
C553	ECEA16N100	Non-Polar Electrolytic, 100 μ F, 16V
C554	ECEA1CS330	Electrolytic, 3.3 μ F, 16V
C601, 602	ECKD1H103MD	Ceramic, 0.01 μ F, 50V, $\pm$ 20%
C603, 604	ECKD1H103MD	Ceramic, 0.01 μ F, 50V, $\pm$ 20%
C605, 606	ECCD1H100K	Ceramic, 10pF, 50V, $\pm$ 10%
C607, 608	ECCD1H100K	Ceramic, 10pF, 50V, $\pm$ 10%
C609, 610	ECEA1HS100	Electrolytic, 10 μ F, 50V
C611, 612	ECQM1H104KZ	Polyester, 0.1 μ F, 50V, $\pm$ 10%
C613, 614	ECQM1H104KZ	Polyester, 0.1 μ F, 50V, $\pm$ 10%
C615, 616	ECKD1H681KB	Ceramic, 680pF, 50V, $\pm$ 10%
C617, 618	ECKD1H681KB	Ceramic, 680pF, 50V, $\pm$ 10%

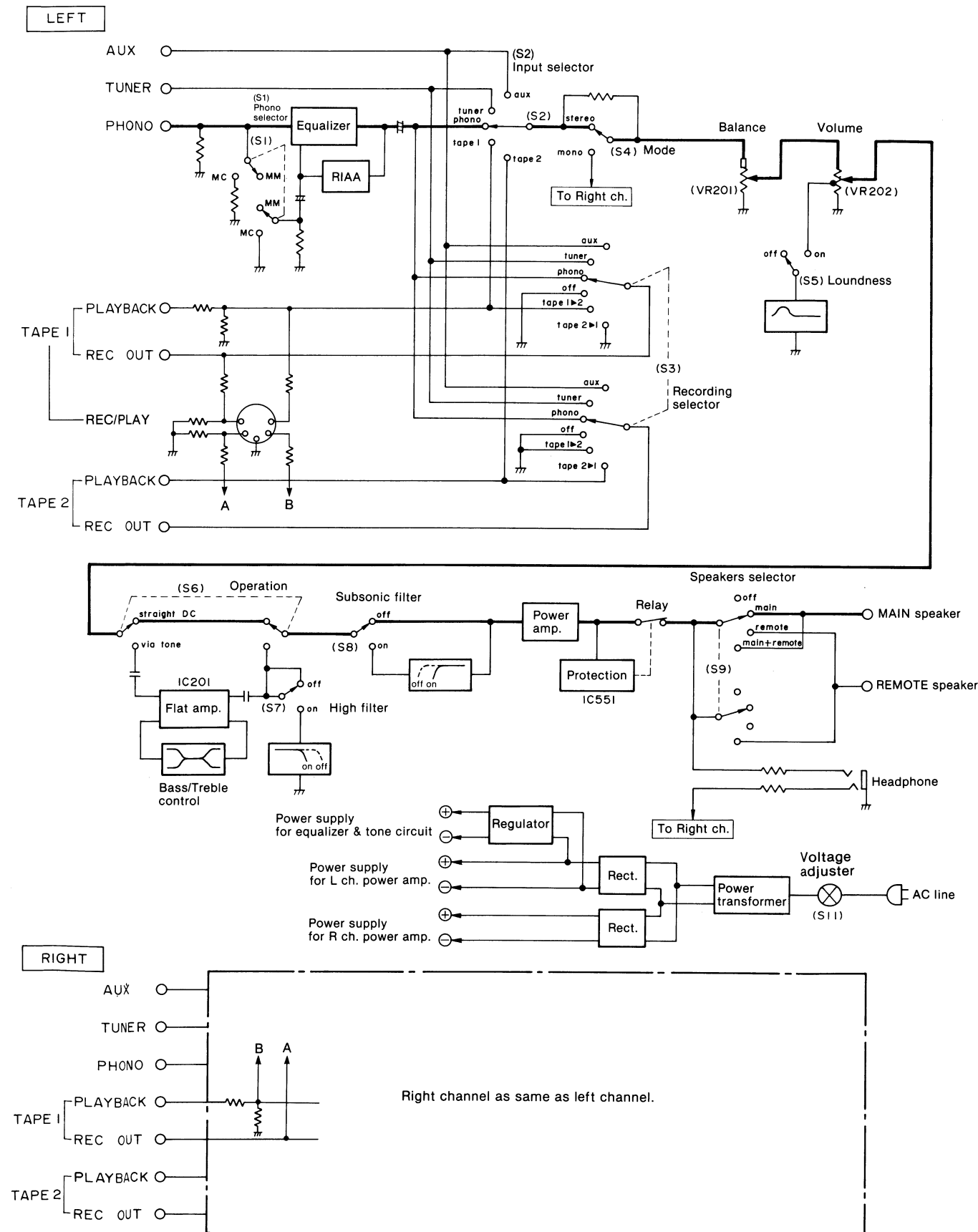
■ REPLACEMENT PARTS LIST.....Electric Parts

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number of rparts orders. 2. Δ indicates that only parts specified by the manufacturer be used for safety. 3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS		
IC101	SVINJM4559DS	IC, Equalizer
IC201	AN6552F	IC, Tone Amplifier
IC551	SVITA7317P	IC, Protection & Operation Amplifier
TRANSISTORS		
Q101~104	2SK170-GR	Transistor, Phono Input Differential Amp. (Use in ranks GR or BL) [FET]
Q301, 302	SVIUPA68H-K	Transistor, Pre Drive Buffer (Use in ranks K or L) [FET]
Q303, 304	2SA995N-G	Transistor, Current Mirror (Use in ranks F or G)
Q305, 306	SVIUPA74V-P	Transistor, Pre Drive Amplifier (Use in ranks P or F)
Q307, 308	2SA921-T	Transistor, Emitter Follower (Use in ranks R, S or T)
Q309, 310, 615	2SA1124-R	Transistor, Pre Drive Amplifier (Use in ranks R or S)
Q311, 312, 613, 614	2SC2632-R	Transistor, Pre Drive Amplifier (Use in ranks R or S)
Q451, 452	2SK34-D1	Transistor, Current Stabilizer [FET]
Q453	2SD381A-L9	Transistor, Positive Voltage Control (Use in ranks K, L, L9 or M)
Q454	2SB536A-L9	Transistor, Negative Voltage Control (Use in ranks K, L, L9 or M)
Q455, 601, 602	2SC1815-Y	Transistor, Regulator & Current Limiter (Use in ranks Y or O)
Q456, 603, 604	2SA1015-Y	Transistor, Regulator & Current Limiter (Use in ranks Y or O)
Q605~608	2SD661-S	Transistor, Bias Supply (Use in ranks R or S)
Q609~612	2SB745-S	Transistor, Bias Supply (Use in ranks R or S)
Q617, 618	2SC1913-R	Transistor, Drive Amplifier (Use in ranks Q or R)
Q619, 620	2SA913-R	Transistor, Drive Amplifier (Use in ranks Q or R)
Q621, 622	2SD845-R	Transistor, Power Amplifier (Use in ranks R or O)
Q623, 624	2SB755-R	Transistor, Power Amplifier (Use in ranks R or O)
DIODES		
D301, 302, 605~608	MA162A	Diode, Bias Supply
D303, 304	MA27A1	Diode, Bias Supply
D401	LN831RP	Light Emitting Diode, Power Indicator
D402	MA162A	Rectifier, Light Emitting Diode
D403, 404	SVDS4VB20	Rectifier
D451	SVDMZ306A2	Diode, 6V Zener
D551, 601~604	MA162A	Diode, Current Limiter
D552	SVDSR1K2	Diode, Pulse Cancel
D609~616	20A90	Diode, Synchronous Bias Switching

Ref. No.		Part No.	Part Name & Description
COILS and TRANSFORMERS			
L601, 602 T401[XE] only T401[Other Areas]	Δ Δ	SLQY15G—3P SLT5Q109 SLT5Q109—1	Coil, Power Amplifier Output Choke Transformer, Power Transformer, Power
VARIABLE RESISTORS			
VR201 VR202 VR203 VR204 R353, 354 R657—660		EWK4A085252 EWFNUA026B15 EWK35F25C15S EWK36F25C15S EVMH9GA00B53 EVTR4SA00B13	Balance Control, 200kΩ (BH) Volume Control, 100kΩ (B) Treble Control, 100kΩ (C) Bass Control, 100kΩ (C) DC Balance Adjustment, 5kΩ(B) Clamp Voltage & Ico. Adjustment, 1 kΩ(B)
THERMISTERS			
TH601, 602		ERTD2FHL103S	Thermister, Thermal Compensation, 10kΩ
COMPONENT COMBINATIONS			
Z402, 403		EXRFS203ZS	Component Combination, 0.01μF (X2)
FUSES			
F1 F2 F3	Δ Δ Δ	XBA2C05TR0 XBA2C50TR0 XBA2C25TR0	Fuse, T500mA (250V) Fuse, T5A (250V) Fuse, T2.5A (250V)
RELAY			
RLY1	Δ	SSY69	Relay, Muting & Protection
SWITCHES			
S1 S2, 3 S4, 5, 7, 8 S6 S9 S10 S11	Δ Δ	ESD80540 ESA2682 SSL145 SSL129 SSR145 ESL21210S ESE37200	Switch, Phono Selection Switch, Input & Recording Selection Switch, Low/High Filter, Mode & Loudness Switch, Operation Switch, Speaker Selection Switch, Power Source Switch, Voltage Adjuster
LAMP			
PL	Δ	XAMR73S350	Lamp, New Class A Badge, 6.3V 250mA

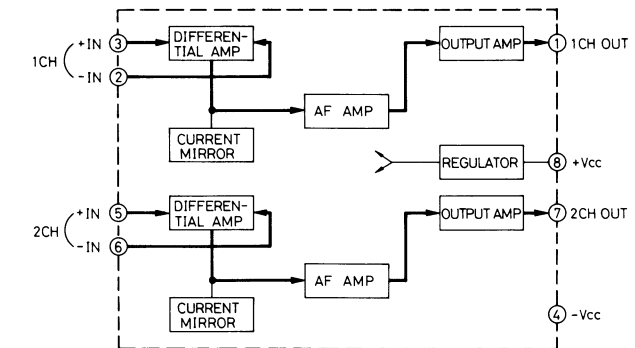
BLOCK DIAGRAM



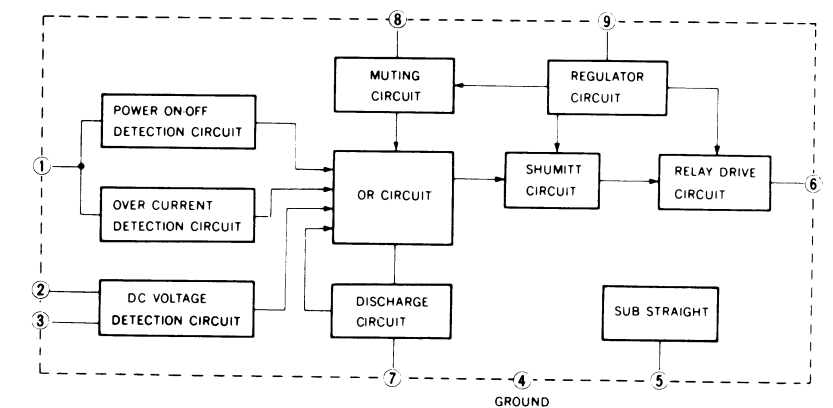
BLOCK DIAGRAM OF IC'S

This is the basic block diagram of the inside circuit of IC. In an actual circuit, there may be sometimes idle terminals or some different functions other than the basic circuit.

IC101 (SVINJM4559DS) Equalizer
IC201 (AN6552F) Tone

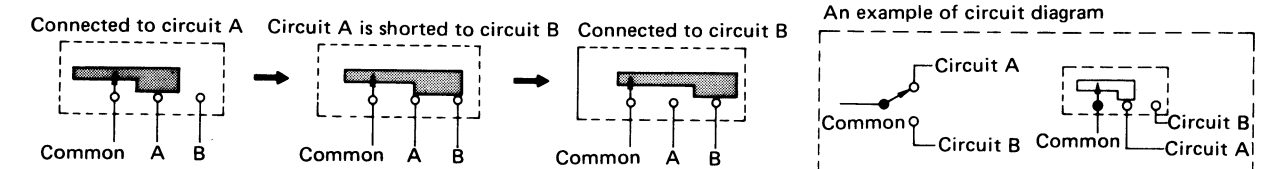


IC551 (SVITA7317P)
Speaker protection & muting



Shorting Switch

This unit uses a shorting switch. As illustrated below, the circuit is shorted to the next circuit without being opened. In the circuit diagram, the shaded area represents the common terminal.



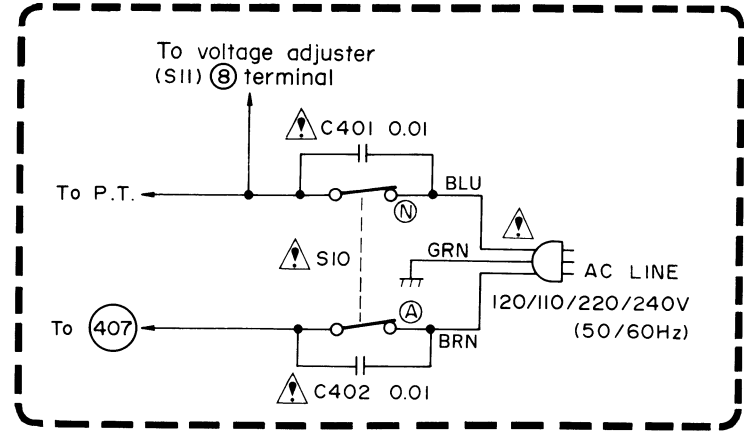
■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

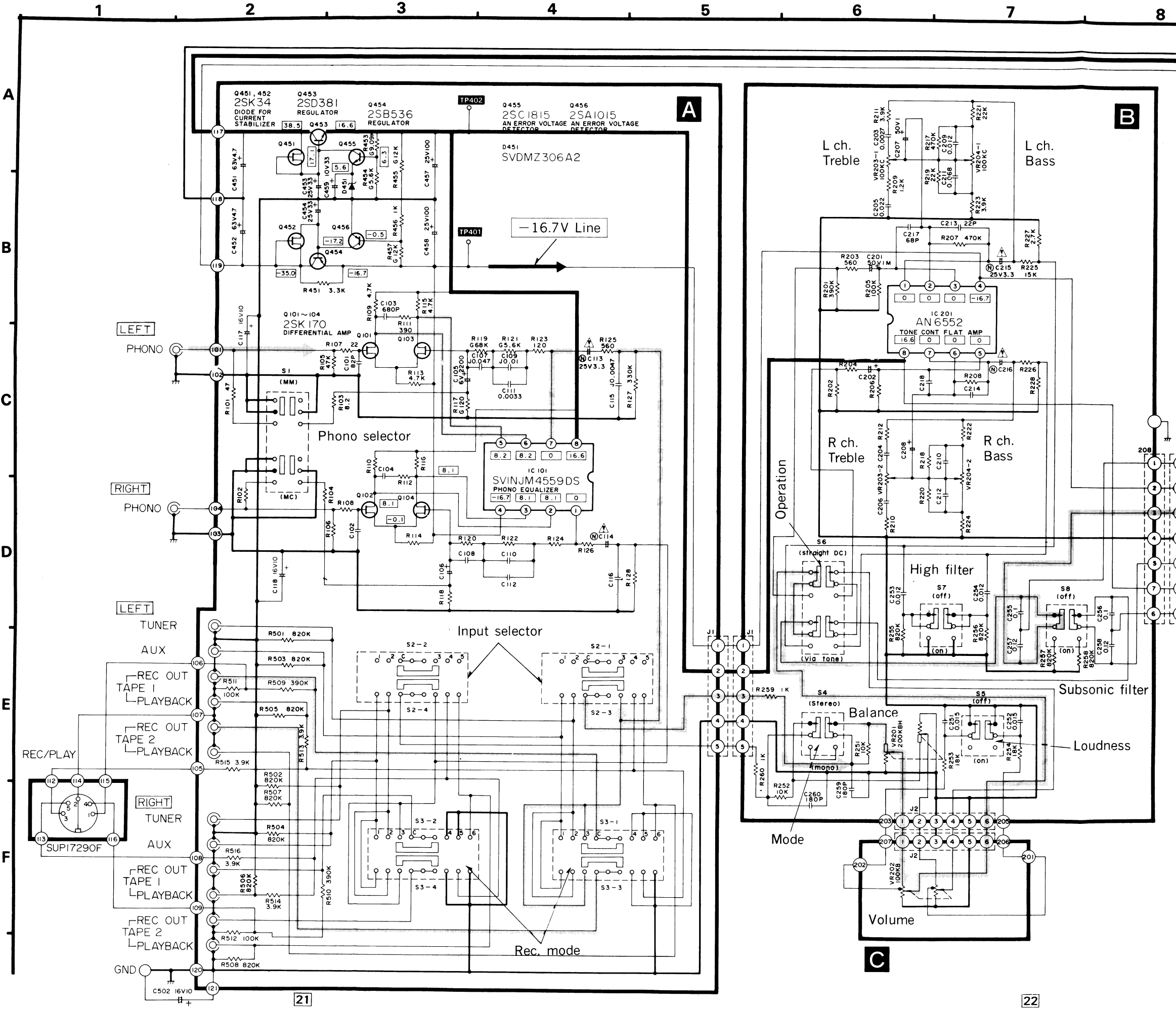
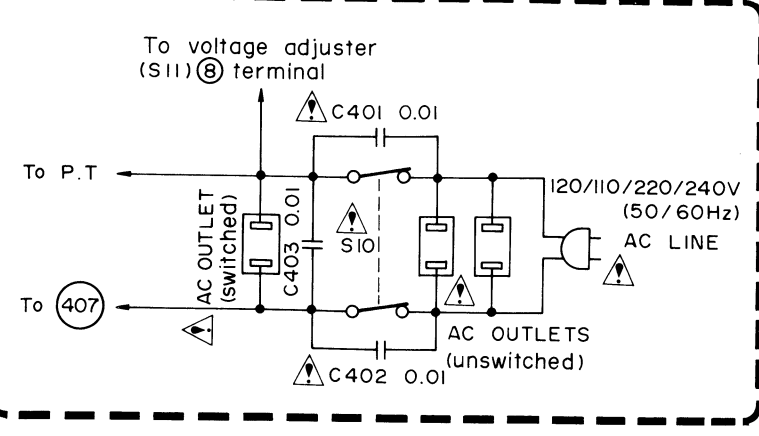
- Notes:
- 1. **S1**: Phono cartridge selector switch in "MM" position. (MM/MC)
 - 2. **S2**: Input selector switch in "phono" position. (5 tape 2/4 tape 1/3 phono/2 tuner/1 aux)
 - 3. **S3**: Recording mode selector switch in "phono" position. (6 tape dubbing 2 1/5 tape dubbing 1 2/4 off/3 phono/2 tuner/1 aux)
 - 4. **S4**: Mode switch in "stereo" position. (stereo/mono)
 - 5. **S5**: Loudness switch in "off" position.
 - 6. **S6**: Operation selector switch in "straight DC" position. (Straight DC/via tone)
 - 7. **S7**: High filter switch in "off" position. (off/7kHz [-6dB/oct])
 - 8. **S8**: Subsonic filter switch in "off" position. (off/20Hz [-12dB/oct])
 - 9. **S9**: Speakers selector switch in "main" position. (1 off/2 main/3 remote/4 main and remote)
 - 10. **S10**: Power source switch in "on" position
 - 11. **S11**: Voltage adjustment switch in "240V" position. (240V/220V/110V/120V)
 - 12. Indicates that only parts specified by the manufacturer be used for safety.
 - 13. Indicated voltage values are the standard values for the DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
 - 14. Phono signal lines of left channel
 - 15. Positive (+ B) voltage lines

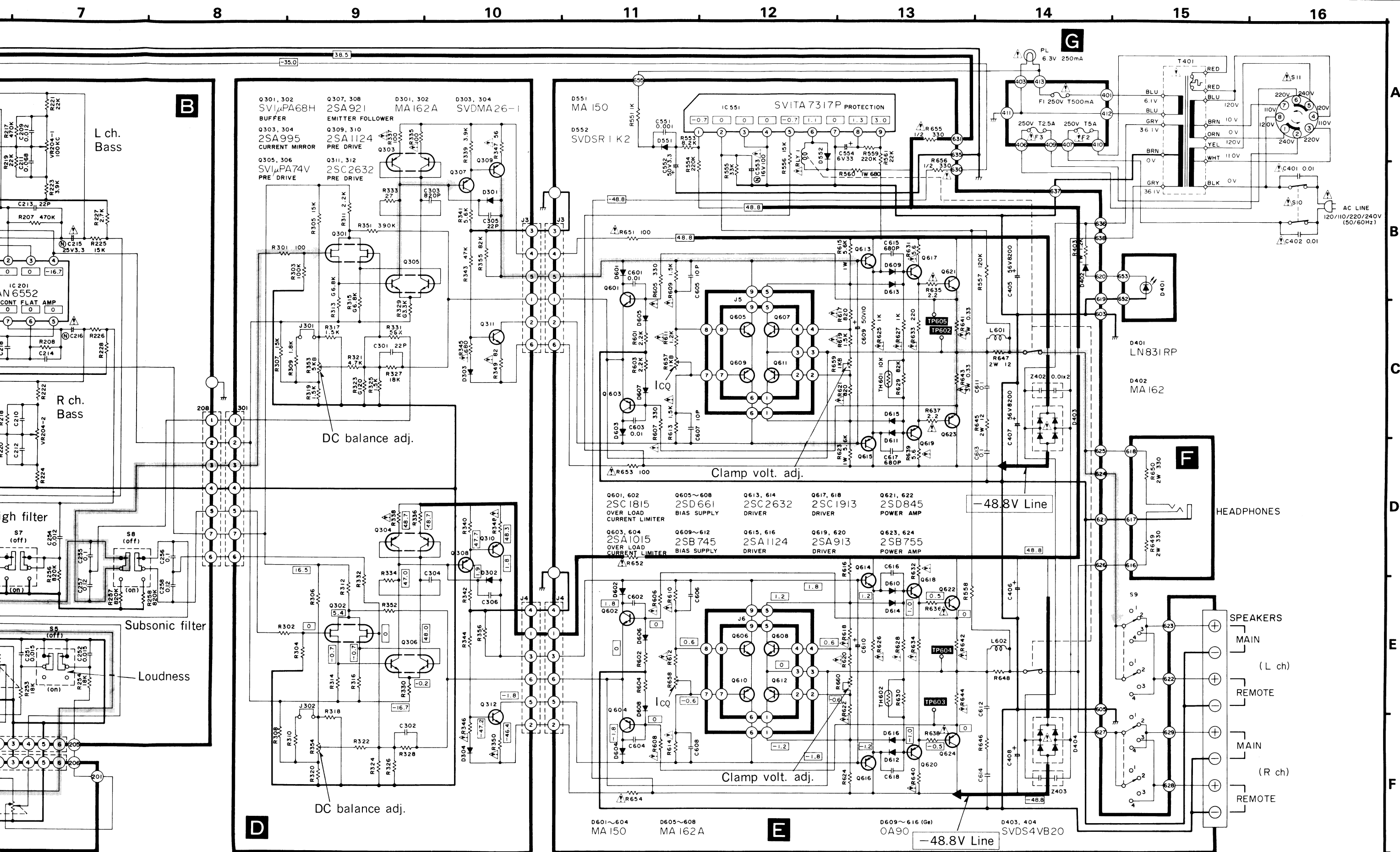
• Power source circuits for [XAL] and [XA]

[XAL] Available in Australia



[XA] Available in Asia, Latin America, Middle East and Africa





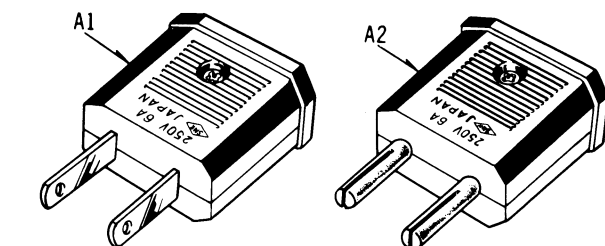
REPLACEMENT PARTS LIST.....Cabinet & Chassis Parts

- Notes:**
- Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
 - Δ indicates that only parts specified by the manufacturer be used for safety.
 - Ⓚ-marked parts are used for black type only, while O-marked parts are for silver type only.
 - Parts other than Ⓚ and O-marked are used for both black and silver types.
 - Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Black type model No. SU-V6 (K)

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
CABINET and CHASSIS PARTS					
1	SGWUV6D	Panel, Front Ass'y	33	SHS6111	Fiber, Cabinet
1	Ⓚ SGWUV6KD	Panel, Front Ass'y (Black)	34	SKC110H	Cabinet
2	Ⓚ SDU43	Filter, New Class A Badge	34	Ⓚ SKC110B	Cabinet (Black)
3	SHG1481	Cover, Power Indicator	35	SKU7990	Bottom Board
4	SHG6063-1	Rubber Magnet	36	SKLA7-1	Foot
5	SHG6089	Cover, New Class A Badge	37	SJS5703	Socket, 7 Pin Lead Connection
6	Ⓚ SDE253	Filter, New Class A Badge	38	SHG6051	Cushion, Cabinet (Rubber)
6	Ⓚ SDE251	Filter, New Class A Badge	39	SUW1597	Stopper, Volume Knob
7	SHS6111	Fiber, New Class A Badge	40	SMXA65	Cover, Line Capacitor
8	SMP281	Holder, New Class A Badge Lamp	41	SJR205	Terminal, 2 Pin (Except for [XA])
9	SHR401-1	Latch, PCB M'tg	42	SUV453	Cover, Voltage Adjuster
10	SHG515	Cushion, Volume Stopper (Rubber)	43	SJS6509	Socket, Rec/Play (DIN)
11	Ⓚ SHR5049	Cover, Lever Switch Knobs	44	SHR301	Clamper, Wire
11	Ⓚ SHR5049-1	Cover, Lever Switch Knobs (Black)	45	SJT347	Holder, Fuse
12	Ⓚ SBD27	Knob, Lever Switch	SCREWS, NUTS and WASHERS		
12	Ⓚ SBD27-1	Knob, Lever Switches (Black)	1	XTS3+8B	Screw, Tapping, + 3 x 8 (Front Panel)
13	Ⓚ SBN855-1	Knob, Volume Control	2	XNS8	Nut, M8 (Volume, Balance, Selector etc.)
13	Ⓚ SBN899	Knob, Volume Control (Black)	3	XWC8B	Washer, Toothed Lock, φ8
14	Ⓚ SBN853	Knob, Balance, Bass, Treble Control	4	XWC9B	Washer, Toothed Lock, φ9
14	Ⓚ SBN897	Knob, Balance, Bass, Treble Control (Black)	5	XNS9	Nut, M9 (Speaker Selector)
15	Ⓚ SBN857	Knob, Speakers, Rec Selector, Input Selector & Phono Selector	6	XWV9	Washer, Spring, φ9
15	Ⓚ SBN901	Knob, Speakers, Rec Selector, Input Selector & Phono Selector (Black)	7	XNS12	Nut, M12 (Headphones Jack)
16	SNE59-1	Washer, Wave Type (Headphones Jack)	8	XTB3+8BFN	Screw, Tapping, + 3 x 8 (Panel & P.C.B.)
17	XCJ6P21B-A	Jack, Headphones	9	XWC3B	Washer, Toothed Lock, φ3
18	SHRA916-1	Latch, Power Indicator PCB M'tg	10	XWG3	Washer, Plain, φ3
19	ESA3334B	Remote Control, Input Selector Switch (S2)	11	XWC6B	Washer, Toothed Lock, φ6
20	ESA3333B	Remote Control, Rec. Selector Switch (S3)	12	XNG6E	Nut, M6 (Ground Terminal)
21	ESA3335B	Remote Control, Phono Selector Switch (S1)	13	XTB3+8BFZ	Screw, Tapping, + 3 x 8 (Rear Panel)
22	RJT202B	Terminal, Ground 1 Pin	14	XWC3B	Washer, Toothed Lock, φ3
23	SJF3029-1	Terminal, Input	15	XTB3+8BFZ	Screw, Tapping, + 3 x 8 (Input Terminal)
24	SJP1103	Pin Plug, Phono Input Connection	16	XTB4+8BFN	Screw, Tapping, + 4 x 8 (Cabinet)
25	SJF5807-1	Terminal, Speakers	17	XTB4+8BFZ	Screw, Tapping, + 4 x 8 (Cabinet)
26	SJT215	Terminal, Ground 1 Pin	18	XTB3+8BFN	Screw, Tapping, + 3 x 8 (Bottom Board)
27 [D, XSW]	SGP1890-1A	Rear Panel	19	XTV3+10BFN	Screw, Tapping, + 3 x 10 (Feet)
27 [XA]	SGP1890-3A	Rear Panel	20	XSN3+6BVS	Screw, + 3 x 6 (Voltage Adjuster & DIN)
27 [XAL]	SGPUV6L	Rear Panel, SGP1890-2A with Name Plate (SGT21170)	21	XWA3BFZ	Washer, Spring, φ3
27 [DG, EB, XE, XGF, XGH]	SGPUV6D	Rear Panel, SGP1890-1A with Name Plate (SGT21130)	ACCESSORIES		
28	SJF4101	Terminal, Ground	A1 [XA] only	Δ SJP5213-1	Plug Adaptor, AC Power
29 [XA] only	Δ SJA66-2	Socket, AC Outlet	A2 [XA] only	Δ SJP5215-1	Plug Adaptor, AC Power
30 [XAL]	Δ QFC1207M	AC Cord, Power Source (w/Plug)	PACKING PARTS		
30 [XSW]	Δ SJA111	AC Cord, Power Source (w/Plug)	P1	SPP651	Polyethylene Bag
30 [XE]	Δ QFC1205M	AC Cord, Power Source	P2 [XSW, XE] only	SPS2357-3	Pad, Left Side
30 [D, DG, XGF, EB, XGH, XA]	Δ SJA97	AC Cord, Power Source (w/Plug)	P2 [Other Areas]	SPS2357-1	Pad, Left Side
31 [XE] only	SFSR5N4	Bushing, AC Cord	P3 [XSW, XE] only	SPS2357	Pad, Right Side
31 [XAL] only	SHR131	Bushing, AC Cord	P3 [Other Areas]	SPS2357-2	Pad, Right Side
31 [Other Areas]	SFSR4N4	Bushing, AC Cord	P4 [XSW, XE] only	SPS2431	Pad, Corner
32	SHS1009	Fiber, Cabinet	P5 [XSW, XE] only	SPG2337	Carton Box
			P5 [XGF] only	SPG2325	Carton Box
			P5 [Other Areas]	Ⓚ SPG2323	Carton Box
			P5 [Other Areas]	Ⓚ SPG2335	Carton Box (Only for Black Type Model)
			P6 [XA] only	SQF10557	Instructions Book, Printed Matter
			P6 [Other Areas]	SQF10301	Instructions Book, Printed Matter

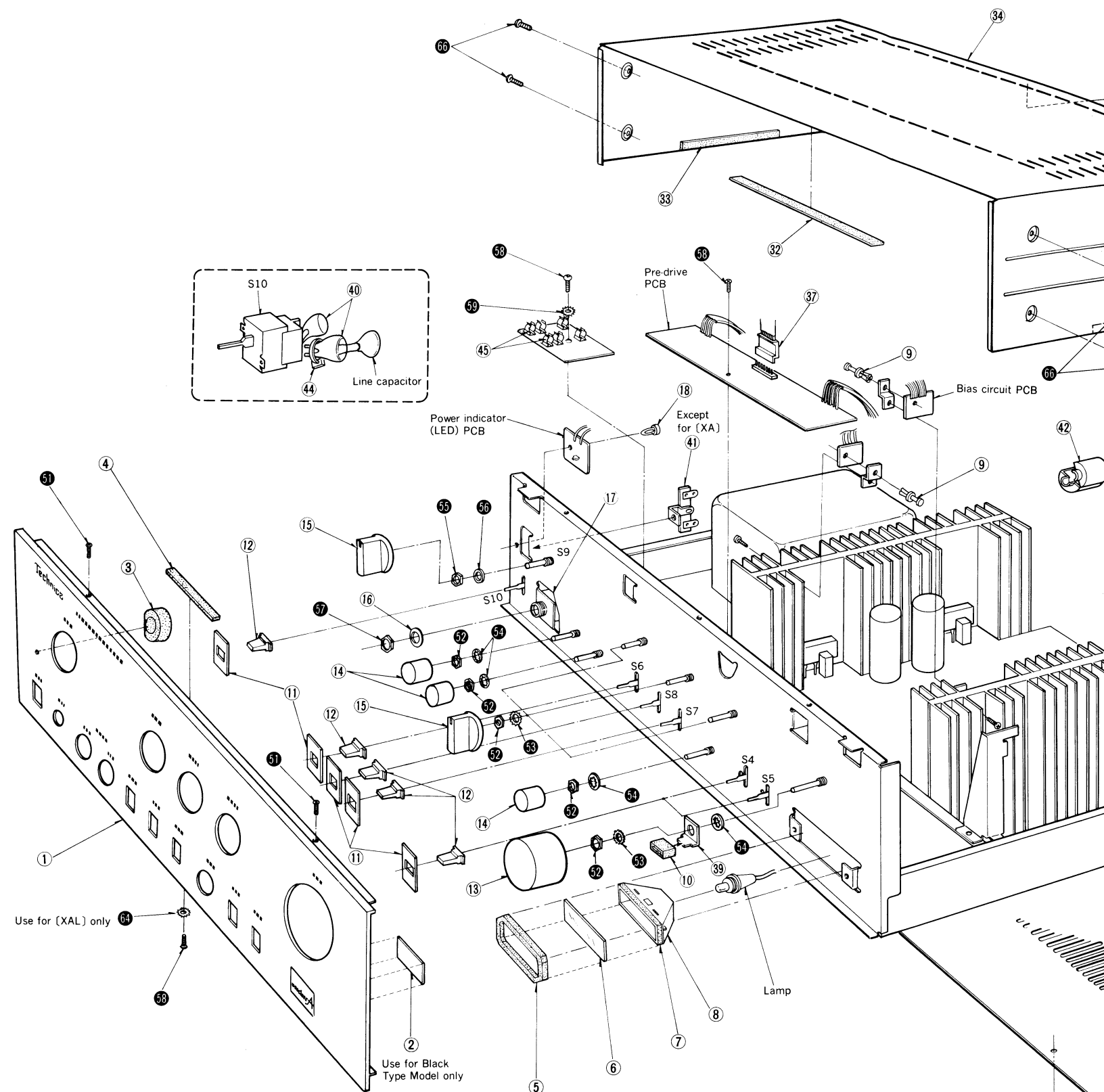
Accessories

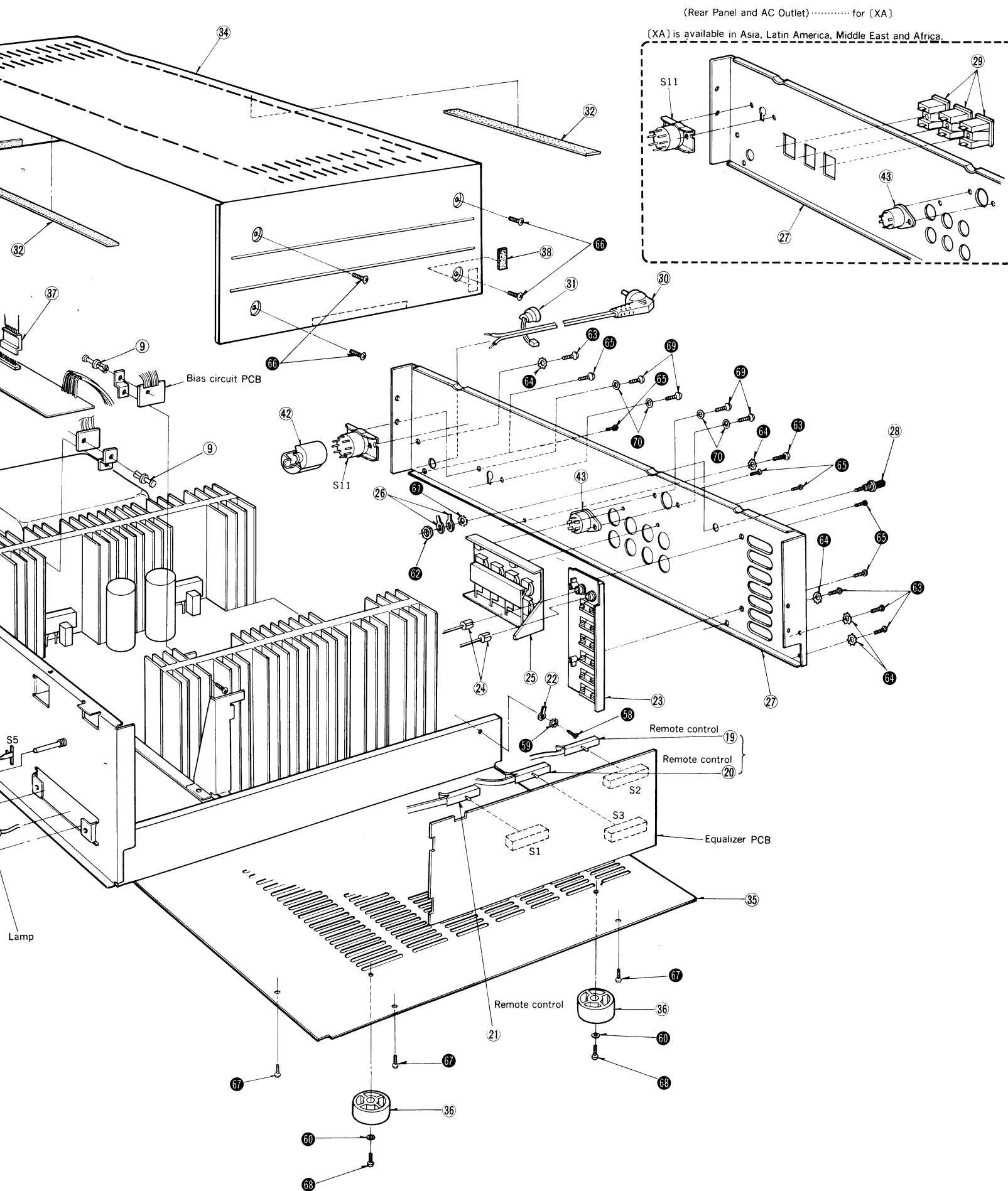


Areas

- * [D] and [DG] are available in Scandinavia and European except Belgium, United Kingdom, Switzerland, Holland and France.
- * [EB] is available in Belgium.
- * [XE] is available in United Kingdom.
- * [XSW] is available in Switzerland.
- * [XGH] is available in Holland.
- * [XGF] is available in France.
- * [XAL] is available in Australia.
- * [XA] is available in Asia, Latin America, Middle East and Africa.

EXPLODED VIEWS





■ SERVICING PRECAUTION

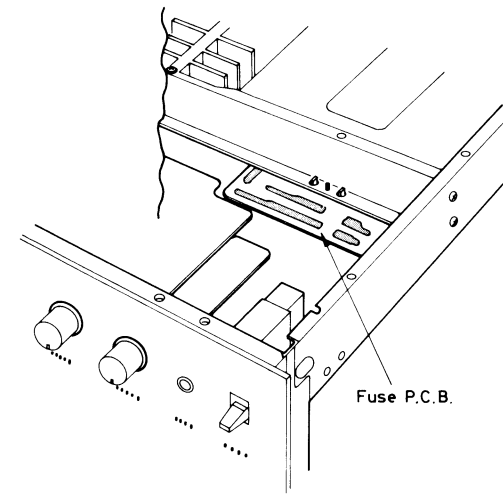


Fig. 1

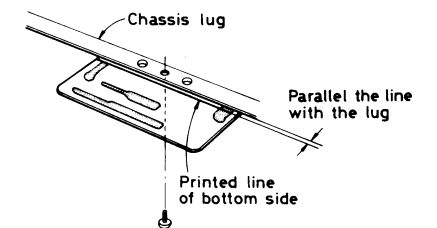


Fig. 2

■ ARRANGEMENTS OF WIRING AFTER REPAIRING

Distortion for the power drive amplifier circuit is delicately affected by the location of wirings. After repairing the circuit, form the lead wires into a loop shape as shown in fig. 3.

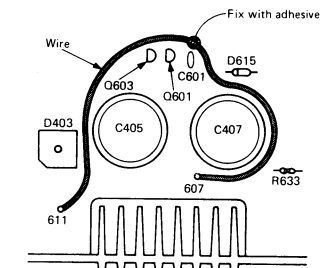


Fig. 3